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National Survey of Professional, Administrative, Technical, and Clerical Pay, March 1985

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National Survey of Professional, Administrative, Technical, and Clerical Pay, March 1985

U.S. Department of Labor
William E. Brock, Secretary

Bureau of Labor Statistics
Janet L. Norwood, Commissioner
August 1985

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Preface

This bulletin summarizes the results of the Bureau's annual salary survey of selected professional, administrative, technical, and clerical occupations in private industry. The nationwide salary information, relating to March 1985, is representative of establishments in a broad spectrum of industries throughout the United States, except Alaska and Hawaii.

Data from the national white-collar salary survey are used for a number of purposes, including general economic analysis and wage and salary administration by public and private employers. One important use is to provide the basis for setting Federal white-collar salaries under the provisions of the Federal Pay Comparability Act of 1970. Under this act, the President has designated the Secretary of Labor, the Director of the Office of Management and Budget, and the Director of the Office of Personnel Management to serve jointly as his agent to establish pay for Federal white-collar employees.

The President's agent specifies the geographic scope of the Bureau's salary survey, the industries to be studied, the minimum establishment size to be included, and the survey occupations. The agent also formulates comparability procedures, uses the survey results to develop statistical paylines, and recommends comparability pay adjustments to the President. The Bureau of Labor Statistics, under the Federal Pay Comparability Act of 1970, is responsible for conducting the survey and advising on the feasibility of proposed survey changes. The Bureau prepares a list of establishments covered by the survey, draws a probability-based sample from this list, collects, tabulates, and reports the data. As mentioned above, however, the survey design is the responsibility of the President's Pay Agent. It should also be emphasized that this survey, like other salary surveys, does not provide mechanical answers to pay policy questions.

The occupations studied span a wide range of duties and responsibilities. The occupations selected were judged to be (a) surveyable in industry within the framework of a broad survey design, (b) representative of occupational groups which generally are numerically important in industry as well as the Federal service, and (c) essentially of the same nature in both the Federal and private sectors.

Occupational definitions used to collect salary data (appendix C) reflect duties and responsibilities in private industry; however, they are also designed to be translatable to specific General Schedule (GS) grades applying to Federal employees. Thus, the definitions of some occupations and work levels were limited to specific elements that could be classified uniformly among establishments. The Bureau of Labor Statistics and the Office of Personnel Management worked jointly to prepare the definitions.

The survey could not have been conducted without the cooperation of the many firms whose salary data provide the basis for the statistical information in this bulletin. The Bureau, on its own behalf and on behalf of the other Federal agencies that contributed to survey planning, wishes to express appreciation for the cooperation it has received.

This survey was conducted in the Bureau's Office of Wages and Industrial Relations by the Division of Occupational Pay and Employee Benefit Levels. Mark S. Sieling prepared the analysis in this bulletin. Computer programming and tabulation of data were developed by Richard S. Schildt under the direction of Richard W. Maylott, Office of Statistical Operations. Terry Burdette and Glen Springer, of the Division of Wage Statistical Methods, were responsible for the sampling design and other statistical procedures. Field work and data collection for the survey were directed by the Bureau's Assistant Regional Commissioners for Operations.

Although only nationwide salary data are presented in this bulletin, salary data for clerical occupations and for drafters and some computer occupations are published for each metropolitan area in which the Bureau conducts area wage surveys. These area reports also include information on the incidence of employee benefits such as paid vacations, holidays, and health, insurance, and pension plans for nonsupervisory office workers.

In 1984, a survey of employee benefits in private industry covered the same scope as the nationwide survey of professional, administrative, technical, and clerical pay. The findings of the survey appear in *Employee Benefits in Medium and Large Firms, 1984,* Bulletin 2237 (Bureau of Labor Statistics, 1985). Copies are for sale from the Government Printing Office.

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Professional, Administrative, Technical, and Clerical Pay, March 1985

Summary

Average salaries for selected white-collar occupations in medium- and large-size establishments increased moderately between March 1984 and March 1985. For most of the 25 occupations included in the survey, increases ranged from 3 to 6 percent—in line with typical gains reported a year earlier. In contrast, increases averaged about 7 percent annually during the 1970's; 9 to 11 percent in 1981 and 1982; and 6.0 to 8.5 percent in 1983.[1]

Average annual salaries for the 107 occupational levels published ranged from $10,101 for clerks performing routine filing to $91,690 for the highest level of attorneys studied. For most occupations, salary levels in metropolitan areas and in large establishments were higher than the average for all establishments within the scope of the survey. Among the industry divisions represented in the survey, public utilities usually reported the highest salaries while finance, insurance, and real estate industries generally reported the lowest salaries and the shortest standard weekly hours.

Characteristics of the survey

This survey—26th in an annual series—provides nationwide salary data for 25 occupations spanning 107 work level categories. Information was collected from establishments in all areas of the United States, except Alaska and Hawaii. The minimum size of the establishments studied was either 50, 100, or 250 employees, depending on the industry. The following major industry groups were surveyed: Mining; construction; manufacturing; transportation, communications, electric, gas, and sanitary services; wholesale trade; retail trade; finance, insurance, and real estate; and services.[2]

Occupations are divided into appropriate work levels based on duties and responsibilities (see appendix C). The number of work levels—designated by roman numerals, with "I" the lowest—varies from occupation to occupation, as do degrees of difficulty and responsibility.[3]

The number of levels in each occupation ranges from one for messengers to eight for engineers. These work levels, however, are not intended to represent all the workers in a specific occupation. For example, the duties and responsibilities of an establishment's top engineers may exceed those for the highest level of engineers in the survey. Thus, the survey does not present comparisons of overall occupational salary levels, such as between accountants as a group and engineers.

The approximately 43,200 establishments within the scope of the survey employed about 22.7 million workers; 45 percent were professional, administrative, technical, and clerical employees. Of these white-collar workers, 19 percent were in occupations and work levels for which salary data were developed. The survey presents separate occupational data for metropolitan areas—where over nine-tenths of the white-collar workers were employed—and for establishments employing 2,500 workers or more.

Employment

Employment varied widely among occupations in the survey, reflecting both actual differences in employment counts and differences in the range of duties and responsiblities covered by survey definitions. For example, there were 552,800 incumbents in the eight levels of engineers, accounting for 73 percent of the 761,000 professional employees within the scope of the study; corporate attorneys, in contrast, numbered under 14,600—a figure that does not include those in legal firms. The five levels of computer programmers and six levels of systems analysts which were surveyed had 120,400 and 113,200 employees, respectively, and together accounted for about four-fifths of the employees in all administrative jobs studied, which also included buyers, job analysts, and directors of personnel. Engineering technicians accounted for 44 percent of the 258,400 technical workers, computer operators 30 percent, and drafters 25 percent. Secretaries constituted the largest clerical occupation, with 45 percent of the clerical work force of 639,400. The next largest clerical occupation was accounting clerk, with about one-fourth of the total.

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[1] For results of the 1984 survey, see *National Survey of Professional, Administrative, Technical, and Clerical Pay, March 1984*, Bulletin 2208 (Bureau of Labor Statistics, 1984).

[2] See appendix A for a full description of the scope of the survey. Services selected by the President's Pay Agent include engineering, architectural, and surveying services; commercially operated research, development, and testing laboratories; credit reporting and collection agencies; computer and data processing services; management, consulting, and public relations services; noncommercial educational, scientific, and research organizations; and accounting, auditing and bookkeeping services.

[3] The roman numerals do not necessarily identify equal levels of work among occupations. For example, public accountant levels I to IV equate to accountant levels II to V while attorney I equates to accountant III and public accountant II. For more information, see appendix D.

Changes in salary levels

After increasing about 7 percent a year during the 1970's, salary levels for most of the survey jobs rose by 9 to 11 percent a year in 1981 and 1982 before declining in 1983 to a 6.0- to 8.5-percent range. In 1984, increases moderated further to a 3- to 6-percent range. (See text table 1.) Moderation continued in 1985; increases for the most part fell between 3 and 6 percent and ranged from 2.3 percent for photographers to 6.5 percent for directors of personnel.

Increases also varied by occupational work level, with average salaries increasing faster in 1985 for the senior levels of professional and administrative occupations than for both the middle group of levels and the lower levels of technical and clerical occupations. Text table 2 shows average salary increases since 1975 for these different groups which equate to various grades of the Federal Government's General Salary Schedule—GS 1-4; GS 5-9; and GS 11-15. Cumulative increases over the past 10 years have been largest for the senior levels,

Text table 2. Percent increases in average salaries by work level category,[1] 1975-85

Period[2]	Group A (GS grades 1-4)	Group B (GS grades 5-9)	Group C (GS grades 11-15)
1975-85	101.6	103.5	114.2
1975-76	7.6	6.4	6.5
1976-77	6.9	6.3	7.7
1977-78	7.5	8.0	8.8
1978-79	7.2	7.5	8.0
1979-80	9.1	10.1	9.3
1980-81	9.8	9.6	10.2
1981-82	9.5	9.4	10.4
1982-83	7.4	7.3	7.2
1983-84	3.6	5.0	5.3
1984-85	4.2	4.2	5.9

[1] A contains survey classifications equating to GS grades 1-4 of the Federal Government's General Salary Schedule; Group B covers GS grades 5-9; and Group C, GS grades 11-15. See appendix D, table D-1, for a listing of survey levels that equate to each GS grade.

[2] For data on survey periods from 1960 to 1970, see the 1979 edition of this publication, Bulletin 2045; for 1970-75, see the 1982 edition, Bulletin 2145.

Text table 1. Percent increases in average salaries by occupation, 1975-85[1]

Occupation	1975 to 1976	1976 to 1977	1977 to 1978	1978 to 1979	1979 to 1980	1980 to 1981	1981 to 1982	1982 to 1983	1983 to 1984	1984 to 1985
Professional, administrative, and technical support:										
Accountants	6.4	7.8	8.3	8.0	9.2	10.0	9.6	6.9	4.7	4.8
Chief accountants	6.6	10.5	8.0	7.7	11.3	9.5	11.4	4.2	5.7	6.2
Auditors	5.5	6.8	8.2	6.5	8.8	10.3	9.4	6.1	8.0	3.8
Public accountants	([2])	([2])	([2])	([3])	4.2	7.9	6.6	7.1	2.3	4.3
Job analysts	6.0	6.5	7.2	8.6	8.1	7.6	9.2	6.7	5.3	5.8
Directors of personnel	7.8	9.1	10.0	7.5	11.2	11.4	9.6	8.3	5.3	6.5
Attorneys	6.1	5.4	9.1	8.9	9.3	9.8	11.4	7.6	4.8	5.9
Buyers	6.7	7.0	7.8	7.0	8.1	9.8	9.4	6.2	5.3	3.8
Chemists	6.6	7.0	9.0	7.6	9.8	9.4	10.4	5.8	5.3	5.6
Engineers	6.8	6.4	9.0	8.4	9.8	10.9	10.2	7.1	5.2	4.9
Engineering technicians	8.1	7.2	7.1	7.6	11.0	10.2	9.4	5.9	4.9	3.7
Drafters	7.4	6.0	7.1	([3])	11.8	10.9	8.4	7.6	3.6	3.7
Computer operators	([3])	5.4	8.5	7.2	8.3	([3])	8.9	6.8	([3])	4.2
Photographers	([2])	([2])	([2])	([2])	([2])	([2])	9.7	8.1	6.9	2.3
Computer programmers	([2])	([2])	([2])	([2])	([2])	([2])	([3])	6.5	([3])	4.5
Systems analysts	([2])	([2])	([2])	([2])	([2])	([2])	([2])	([2])	([3])	4.0
Clerical:										
Accounting clerks	7.2	6.9	6.2	([3])	6.9	9.6	8.9	8.1	3.8	4.8
File clerks	6.4	5.5	9.7	5.5	9.3	8.0	7.2	6.4	2.1	3.7
Key entry operators	7.6	5.9	7.1	6.8	9.1	8.2	9.4	7.3	3.4	3.6
Messengers	7.4	7.5	6.0	6.8	5.5	9.7	6.4	9.2	2.9	4.1
Personnel clerks/assistants	([2])	([2])	([2])	([2])	8.6	([3])	10.2	9.7	5.4	2.7
Purchasing assistants	([2])	([2])	([2])	([2])	([2])	([2])	([2])	9.3	6.8	5.1
Secretaries	([3])	6.4	6.5	7.3	9.6	([3])	9.2	7.1	5.0	4.7
Stenographers	8.0	7.9	8.2	12.1	10.1	12.1	13.8	8.6	5.5	4.9
Typists	7.1	6.2	8.0	8.5	8.9	10.2	10.1	6.8	2.0	5.9

[1] For data on survey periods from 1960 to 1970, see the 1979 edition of this publication, Bulletin 2045; for 1970-75, see the 1982 edition, Bulletin 2145.

[2] Not surveyed.

[3] Comparable data for both years not available.

NOTE: For method of computation, see appendix A.

about 12 percentage points greater than for the lower and middle groups of work levels.

Average salaries, March 1985

Reflecting the wide range of duties and responsibilities covered by the occupations studied, average annual salaries ranged from $10,101 for file clerks I to $91,690 for the top level of attorneys (table 1).[4] The following paragraphs summarize findings for the various occupations studied.

Accountants' average annual salaries ranged from $20,577 for beginning professional accountants (level I) to $59,519 for specialists in complex accounting systems (level VI). Salaries of the most numerous group (level III) averaged $30,037 a year. Nearly three-fifths of the accountants surveyed were in manufacturing industries; finance, insurance, and real estate accounted for one-eighth; while public utilities employed just over one-tenth.

Work levels for *chief accountants* are determined by the degree of authority and responsibility, the technical complexity of the accounting system, and, to a lesser degree, the size of the professional staff (usually 1-2 accountants at the first levels to as many as 40 accountants at level IV). Of the chief accountants surveyed, slightly over two-thirds were employed in manufacturing industries and less than one-tenth each in the public utilities and the finance, insurance, and real estate sectors.

Chief accountants who adapt accounting systems which have only a few relatively stable functions and work processes (level I) averaged $37,557 a year. At level IV, those who have authority to establish and maintain the accounting program, subject to general policy guidelines, for a company with numerous and varied accounting functions and work processes averaged $74,735 annually.[5]

Auditors at the trainee level (level I) averaged $21,128 a year and those at IV, who conduct complex financial audits, averaged $39,243. Manufacturing industries employed almost two-fifths of the auditors, while the finance, insurance, and real estate sector employed just over one-third and public utilities over one-eighth.

Public accountants at the entry level, who receive practical experience in applying the principles, theories, and concepts of accounting and auditing (level I), averaged $19,657 annually. The highest level of public accountants (level IV), who direct the field work for large or complex audits, averaged $31,416 a year. This occupation was only found in public accounting firms, which are a part of the selected services industry group.

Attorneys are classified based upon the difficulty of their assignments and their responsibilities. Attorneys I, who include new law school graduates with bar membership and whose work is relatively uncomplicated due to clearly applicable precedents and well-established facts, averaged $29,886 a year. Attorneys in the top level surveyed (VI) averaged $91,690. These attorneys deal with legal matters of major importance to the organization and usually report only to the general counsel or, in very large firms, to the deputy general counsel. Finance, insurance, and real estate employed two-fifths of the attorneys and manufacturing industries employed three-tenths.[6]

Buyers who purchase "off-the-shelf" and readily available items and services from local sources (level I) averaged $20,896 a year. Buyers IV, who purchase highly complex and technical items, materials, or services that are custom designed and manufactured, averaged $39,306. Approximately four-fifths of the buyers studied were employed in manufacturing industries.

Computer programmers at the trainee level who are developing basic programming skills (level I) averaged $20,318 a year. Those at level V, who are either team leaders, staff specialists, or consultants responsible for complex programming, averaged $41,288 annually. Manufacturing industries employed almost two-fifths of all computer programmers surveyed; finance, insurance, and real estate accounted for almost one-fourth; services, about one-fifth; and public utilities, almost one-tenth.

Computer systems analysts who are familiar with systems analysis procedures and work independently on routine problems (level I) averaged $28,197 annually. Systems analysts VI, the highest level, averaged $68,809 a year. At this level, analysts are senior managers responsible for the development and maintenance of very large and complex computer systems.[7] About two-fifths of all systems analysts surveyed were in manufacturing; just over one-fourth in finance, insurance, and real estate; and about one-eighth each in services and public utilities.

Personnel management occupations are represented by four levels of *job analysts* and five levels of *directors of personnel*. Job analysts I averaged $20,774 a year compared with $36,983 for level IV. Under general supervision, job analysts IV analyze and evaluate a variety of the more difficult jobs and may participate in the development and installation of job evaluation and compensation systems. Directors of personnel are limited by definition to those who, at a minimum, are responsible for administering a job evaluation system, employment and placement functions, and employee relations and services. Those with significant responsibility for contract negotiations with labor unions as the principal company representative are excluded. Various combinations of work force size, duties, and responsibilities determine the work level.

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[4] Despite this wide difference, salary averages for professional jobs of equivalent levels of work often fell within a relatively narrow band. For example, annual averages for the following work levels (equivalent to Federal grade 13) fell within a $4,330 or 8 percent range: Accountant VI ($59,519); chief accountant III ($60,466); attorney IV ($59,087); chemist VI ($58,210); and engineer VI ($56,136).

[5] Data for chief accountants V; directors of personnel V; chemists VIII; computer operators VI; photographers V; and personnel clerks/assistants V did not meet publication criteria for this survey.

[6] The survey excludes establishments primarily offering legal advice or services.

[7] As noted in appendix B, information was collected separately for five levels of nonsupervisory systems analysts and four levels of systems analysts supervisors/managers. The data were consolidated for publication, using the approach shown in appendix B.

Among personnel directors, average yearly salaries ranged from $37,173 for level I to $70,663 for level IV.[8] Manufacturing industries employed almost one-half of the job analysts and seven-tenths of the directors of personnel included in the survey; the finance, insurance, and real estate industries ranked next with about three-tenths of the job analysts and one-eighth of the directors of personnel.

Chemists and engineers each are surveyed in eight levels[9] starting with a professional trainee level typically requiring a bachelor's degree. The highest level surveyed involves either full responsibility over a broad, complex, and diversified chemical or engineering program, with several subordinates each directing large and important segments of the program, or individual research and consultation in problem areas where the chemist or engineer is a recognized authority and where solutions represent a major scientific or technological advance.[10] Average yearly salaries ranged from $22,631 for chemists I to $68,710 for chemists VII, the highest level for which data could be published, and from $27,405 for engineers I to $76,205 for engineers VIII. Level IV chemists and engineers, the largest groups in each profession and representing fully experienced employees, averaged $39,418 and $40,991 a year, respectively.

Employment of chemists and engineers was highly concentrated in manufacturing industries (88 percent of the chemists and 75 percent of the engineers). Most of the remaining chemists were associated with research and development laboratories. Engineers were also found in significant numbers in research, development, and testing laboratories, establishments providing engineering services, and public utilities.

Engineering technician is a five-level series limited to employees providing semiprofessional technical support to engineers. These technicians work with engineers in such areas as research, design, development, testing, or manufacturing process improvement, and use electrical, electronic, or mechanical components or equipment. Technicians involved in production or maintenance work are excluded. Engineering technicians I, who perform simple routine tasks under close supervision or from detailed procedures, averaged $16,876 a year. Engineering technicians V, who work on more complex projects under general guidelines supplied by a supervisor or professional engineer, averaged $31,386. Salaries for intermediate levels III and IV, containing a majority of the technicians surveyed, averaged $23,179 and $27,259, respectively.

Just over four-fifths of the engineering technicians were employed in manufacturing and about one-eighth in services. The ratio of technicians to engineers was about 1 to 4 in all manufacturing industries combined; in mechanical and electrical equipment manufacturing, it was 1 to 4. In public utilities, the ratio was 1 to 5; and in research, development, and testing laboratories, 1 to 3.

Average salaries of *drafters* ranged from $13,208 a year for level I (who trace or copy finished drawings) to $29,876 for level V (who work closely with designers preparing unusual, complex, or original designs). Seven-tenths of the drafters were in manufacturing firms and about one-seventh in services.

Computer operators are classified on the basis of responsibility for problem solving, variability of assignments, and scope of authority for corrective action needed by their equipment. Computer operators I, whose work consists of on-the-job training, averaged $13,670 a year. The largest group surveyed, level II, averaged $16,973, and the highest published level (V) averaged $28,440.[11] About two-fifths of all computer operators were located in manufacturing industries; one-fourth in finance, insurance, and real estate; and one-eighth in services.

Photographers studied in the survey range from those taking routine pictures where several shots can be taken or opportunities for retakes exist (level I) to those using special-purpose cameras under technically demanding conditions (level IV).[12] Photographers working for media establishments, such as newspapers or advertising agencies, were excluded. The average annual salary for level I photographers was $17,571 compared with $30,210 for level IV's. Manufacturing industries employed almost seven-tenths of the photographers covered by the survey while most of the remainder were in services.

Among the survey's nine *clerical jobs,* secretary was the most numerous. Average yearly salaries ranged from $15,869 for level I secretaries to $26,210 for level V. Average annual salaries of $18,391 and $20,914 were reported for stenographers I and II. Typists I averaged $12,621 and those at level II, $15,847.

Accounting clerks performing simple and routine clerical accounting operations (level I) averaged $12,380 a year. Level IV clerks who maintain journals or subsidiary ledgers averaged $21,106. Three-fourths of all accounting clerks were classified in levels II and III, which averaged $14,728 and $17,327 a year, respectively.

Personnel clerks/assistants who perform routine tasks requiring a knowledge of personnel rules and procedures (level I) averaged $14,023 a year. Level IV assistants, who provide paraprofessional support such as interviewing and recommending placement for well-defined occupations, averaged $22,355.[13]

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[8] See footnote 5.

[9] See footnote 5.

[10] The definition recognizes that top positions in some companies with unusually extensive and complex chemical or engineering programs exceed this level.

[11] See footnote 5.

[12] See footnote 5.

Level I purchasing assistants examine and review routine purchasing agreements. Their yearly average of $16,363 compared with $28,150 for top level III assistants, who prepare complicated purchase documents, expedite the purchase of highly specialized items, or provide detailed technical support to buyers.

Clerical workers generally were highest paid in manufacturing, mining, and public utilities and lowest paid in finance, insurance, real estate, and retail trade. Over two-fifths of the clerical employees were employed in manufacturing industries. The finance, insurance, and real estate industries and public utilities also employed large numbers of clerical workers, accounting for about one-fourth and one-tenth of the total, respectively.

Salary levels in metropolitan areas

For most occupational levels, average salaries in metropolitan areas (table 2) were slightly higher than national averages (table 1). In only 12 instances, however, did these differences exceed 1 percent.

Approximately nine-tenths of the employees surveyed were located in metropolitan areas, with the proportion varying among occupations and work levels. Ninety-five percent or more of public accountants, computer programmers, job analysts, attorneys, messengers, and file clerks were in metropolitan areas. In 78 of the 107 work levels providing publishable data, at least 90 percent of the workers were in metropolitan areas.

Salary levels in large establishments

Large establishments—those employing 2,500 workers or more—accounted for about 41 percent of all employees in the 99 occupational work levels for which comparisons to all-establishment averages were possible (table 3). The proportion of workers in large establishments ranged from less than one-tenth of directors of personnel II and file clerks I to 97 percent of purchasing assistants III. Large establishments commonly employed a majority of workers at the highest levels of professional, administrative, and technical support occupations. Among clerical occupations, however, they employed a majority of only purchasing assistants III and both levels of stenographers.

Salary levels in large establishments expressed as percents of levels in all establishments combined ranged from 98 to 123. Salary levels in large establishments were higher than the all-establishment average by 5 percent or more in all but 5 of the clerical levels and in about two-fifths of the 73 nonclerical levels, as shown in the following tabulation (the all-establishment average for each occupational level = 100):

	Professional, administrative, and technical	*Clerical*
Total number of levels	73	26
95-99 percent	3	1
100-104 percent	41	4
105-109 percent	20	8
110-114 percent	8	7
115 percent and over	1	6

As expected, pay relatives were close to 100 for those work levels where large establishments contributed heavily to total employment and, consequently, to the all-establishment average.

Salary distributions

Employee distributions of annual salaries for professional and administrative occupations are presented in table 4, for technical support occupations in table 5, and for clerical occupations in table 6. Within most work levels, the highest salary rates were more than twice as large as the lowest rates. As illustrated in charts 1-3, these differences tended to increase with each rise in the work level. Salary ranges of specific work levels in an occupation also tended to overlap each other. This reflects both salary differences among establishments and the frequent overlapping of salary ranges within individual firms.[14]

Median annual salaries for most work levels were slightly lower than the mean average salaries.[15] Hence, salaries in the upper halves of the arrays affected the means more than salaries in the lower halves. The relative difference between the mean and the median was less than 2 percent for 69 of the 107 work levels surveyed, from 2 to 4 percent in 31 levels, and from over 4 to 6.4 percent in the other 7 levels.

The degree of salary dispersion tended to be larger for clerical occupations than for professional, administrative, or technical occupations. These dispersions, shown in text table 3, reflect the salary range of the middle 50 percent of employees in each work level expressed as a percent of the median salary. This eliminates the extremely low and high salaries for each comparison. In about nine-tenths of the 107 publishable work levels, the degree of dispersion ranged between 15 and 30 percent.

Salary differences within work levels reflect a variety of factors other than duties and responsibilities. These include salary structures within establishments which provide for a range of rates for each grade level; variations in occupational employment among industries (table 7 and chart 4); and geographic salary differences,

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[13] See footnote 5.

[14] For an analysis of rate ranges within establishments, see Martin E. Personick, "White-collar Pay Determination Under Range-of-Rate Systems," *Monthly Labor Review*, December 1984, pp.25-30.

[15] The median designates position; one-half of the workers receive the same as or more and one-half receive the same as or less than the median rate. The mean is computed for each job by totaling the earnings of all workers and dividing by the number of workers.

Text table 3. Distribution of work levels by degree of salary dispersion, March 1985

Occupation	Number of work levels	Number of levels having degree of dispersion[1] of—				
		Under 15 percent	15 and under 20 percent	20 and under 25 percent	25 and under 30 percent	30 percent and over
All occupations	107	5	43	40	15	4
Accountants	6	–	3	3	–	–
Chief accountants	4	–	3	1	–	–
Auditors	4	–	–	4	–	–
Public accountants	4	2	2	–	–	–
Job analysts	4	–	2	1	1	–
Directors of personnel	4	–	1	2	1	–
Attorneys	6	–	2	4	–	–
Buyers	4	–	1	3	–	–
Chemists	7	–	3	4	–	–
Engineers	8	2	6	–	–	–
Engineering technicians	5	–	2	3	–	–
Drafters	5	–	5	–	–	–
Computer operators	5	–	2	2	1	–
Photographers	4	–	1	3	–	–
Computer programmers	5	1	3	1	–	–
Systems analysts	6	–	5	1	–	–
Clerical workers	26	–	2	8	12	4

[1] Degree of dispersion equals the salary range of the middle 50 percent of employees in a work level expressed as a percent of the median salary for that level.

especially for clerical employees.[16] Clerical employees usually are recruited locally, while professional and administrative positions tend to be recruited on a broader regional or national basis.

Pay differences by industry

Occupational salary levels in major industry divisions were compared to the all-industry average (table 8). Salary levels for professional, administrative, and technical occupations in manufacturing industries tended to be closest to the all-industry average. Manufacturing, however, accounted for more employment than any other sector, except in the case of attorneys and public accountants. Relative salary levels were generally highest in mining and public utilities.

For most occupations studied, relative salary levels were lowest in the retail trade and finance, insurance, and real estate industries. Where these industries employed a substantial proportion of workers in an occupation, the all-industry average was dampened; consequently, relative pay levels in such industries as manufacturing and public utilities tended to be elevated above the all-industry average. For example, relative pay levels of messengers in manufacturing (112 percent of the all-industry average) and public utilities (133 percent) reflect the influence on the all-industry average of lower salaries for 48 percent of these workers employed in finance, insurance, and real estate industries. These industries, however, also report slightly shorter average standard workweeks than other industries.

Average standard weekly hours

The distribution of average weekly hours (rounded to the nearest half hour) is shown in table 9 for each occupation by major industry division. Average weekly hours were lower in finance, insurance, and real estate (about 38 hours for most occupations) than in other industries (39 to 40 hours). Average weekly hours have been fairly stable over the past decade.[17] Standard weekly hours, the base for regular straight-time salary, were obtained for individual employees in the occupations studied. When individual hours were not available, particularly for some higher level professional and administrative positions, the predominant workweek of the office work force was used as the standard workweek.

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[16] For analysis of interarea pay differentials in clerical salaries, see *Wage Differences Among Metropolitan Areas, 1984*, Summary 84-7 (Bureau of Labor Statistics, 1984), and Mark Sieling, "Clerical Pay Differences in Metropolitan Areas, 1961-80," *Monthly Labor Review*, July 1982, pp.10-14.

[17] For information on scheduled weekly hours of office workers employed in metropolitan areas, see *Area Wage Surveys, Selected Metropolitan Areas, 1984*, Bulletin 3025-72 (Bureau of Labor Statistics, 1985).

Chart 1. Salaries in professional occupations, March 1985

(Mean annual salaries and ranges within which fell 50 percent of employees)

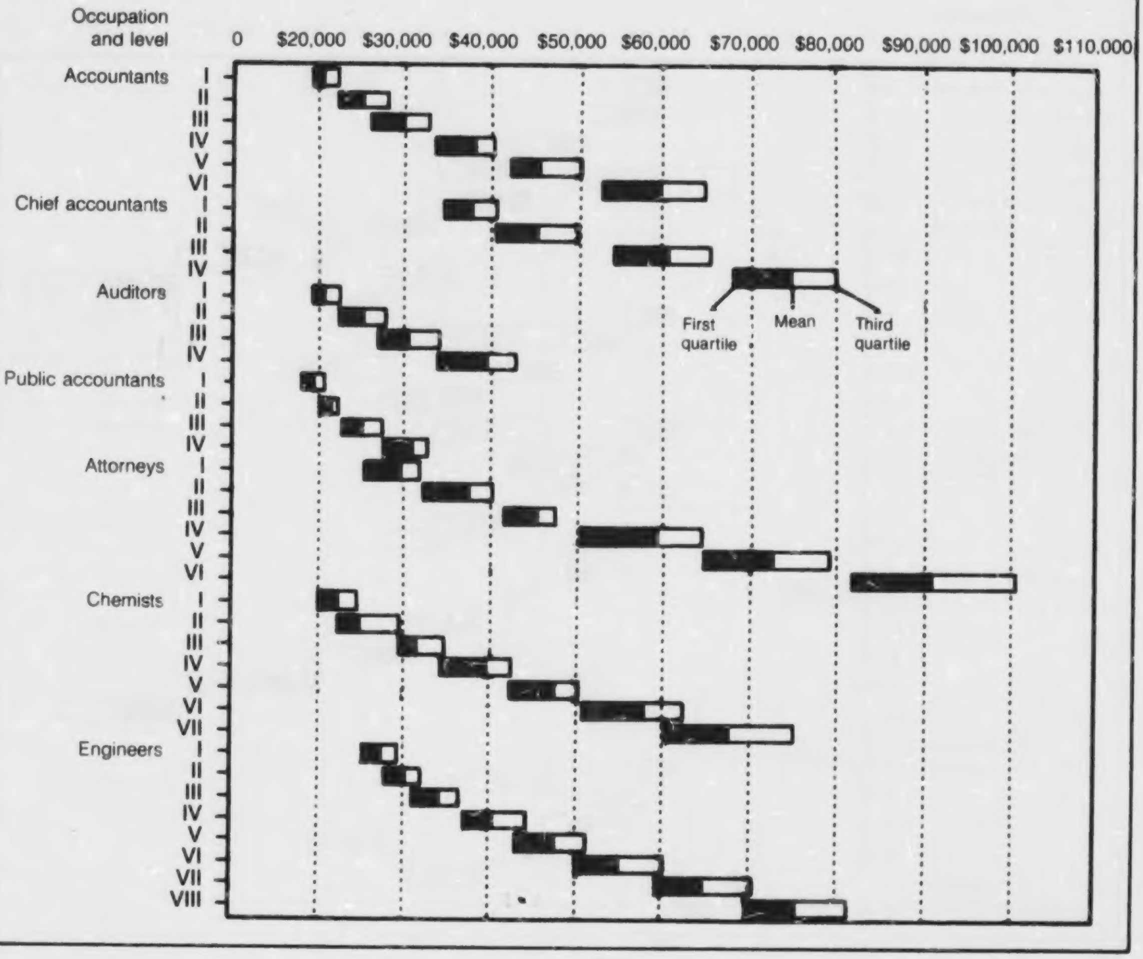


Chart 2. Salaries in administrative and technical occupations, March 1985

(Mean annual salaries and ranges within which fell 50 percent of employees)

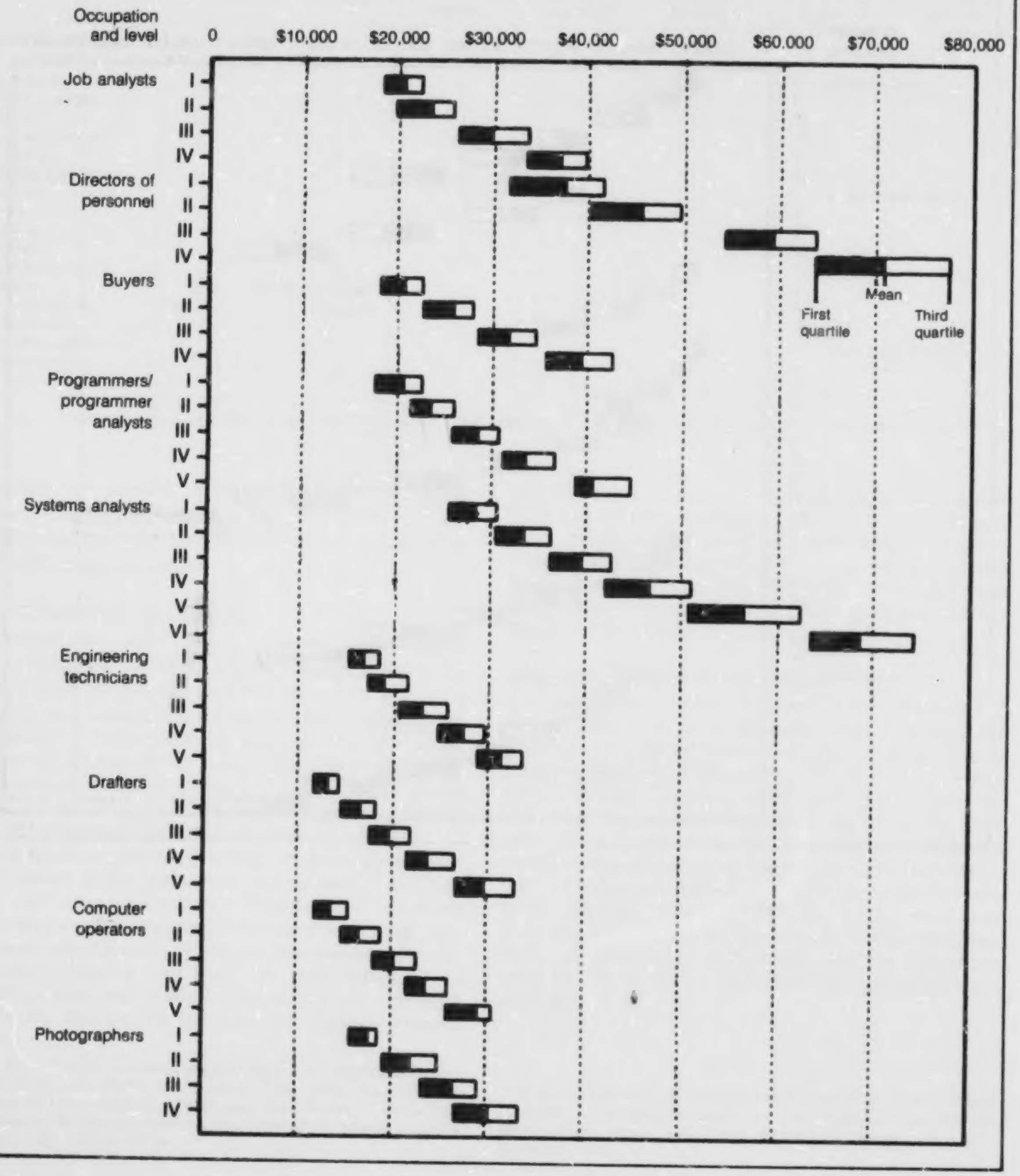


Chart 3. Salaries in clerical occupations, March 1985

(Mean annual salaries and ranges within which fell 50 percent of employees)

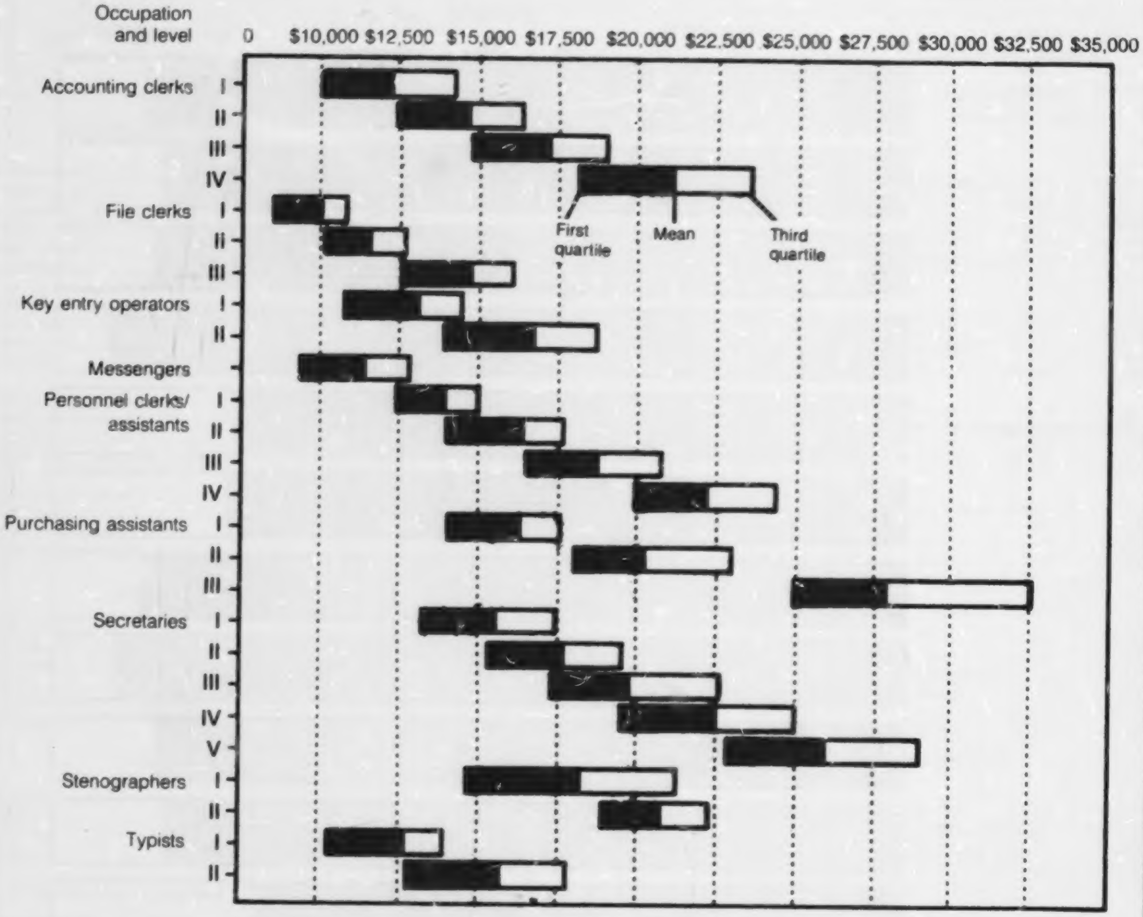
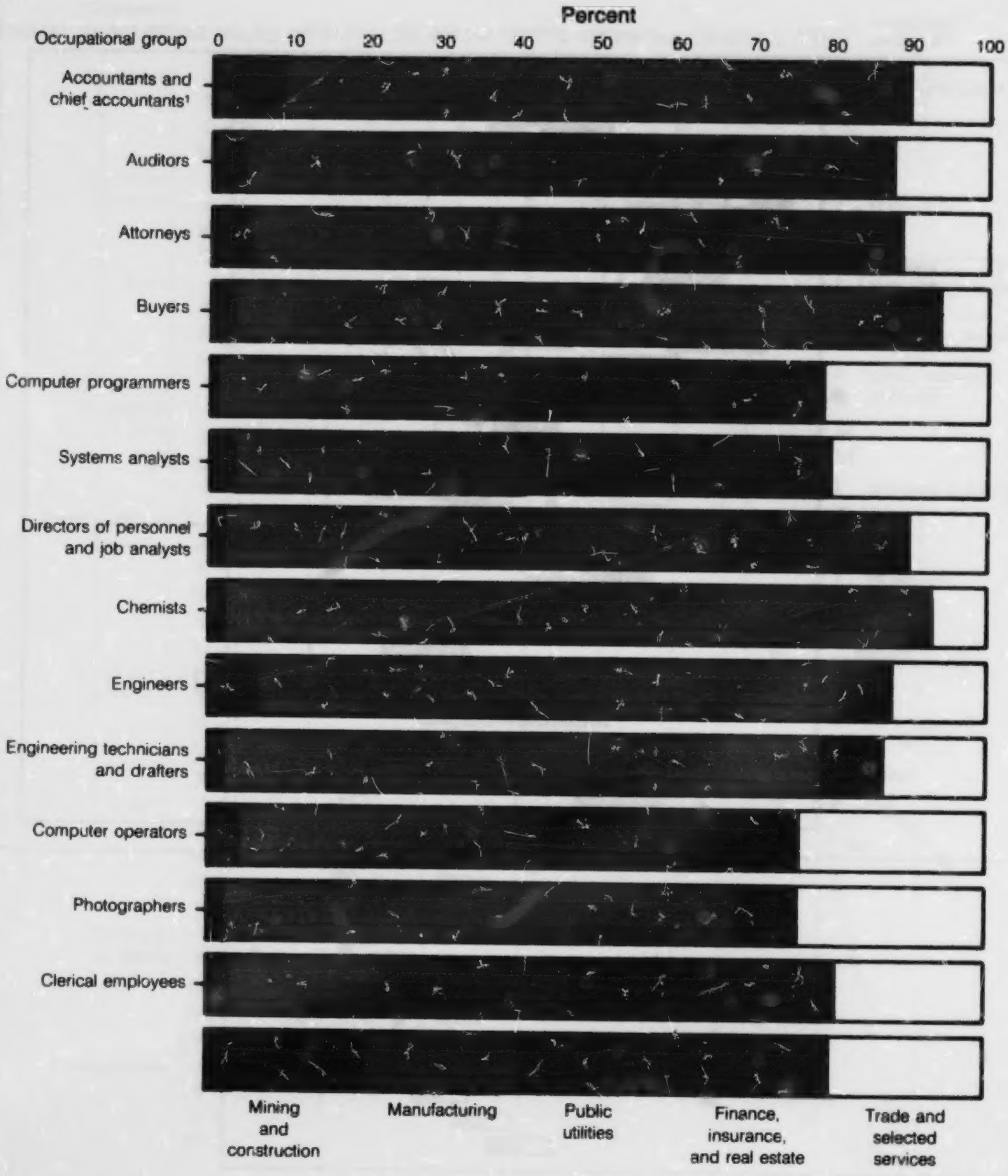


Chart 4. Relative employment in selected occupational groups by industry division, March 1985



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[1] Public accountants are not included. This occupation is found only in accounting, auditing, and bookkeeping services in the selected services industry group.

Table 1. Average salaries: United States

(Employment and average salaries for selected professional, administrative, technical, and clerical occupations in private industry,[1] United States, except Alaska and Hawaii, March 1985)

Occupation and level[2]	Number of employees[3]	Monthly salaries[4]				Annual salaries[4]			
		Mean[5]	Median[5]	Middle range[5]		Mean[5]	Median[5]	Middle range[5]	
				First quartile	Third quartile			First quartile	Third quartile
Accountants and auditors									
Accountants I	12,465	$1,715	$1,705	$1,524	$1,875	$20,577	$20,460	$18,293	$22,500
Accountants II	22,874	2,112	2,083	1,875	2,328	25,349	24,990	22,500	27,931
Accountants III	36,599	2,503	2,474	2,205	2,750	30,037	29,688	26,460	33,000
Accountants IV	21,232	3,134	3,105	2,832	3,415	37,607	37,266	33,986	40,983
Accountants V	7,841	3,907	3,873	3,556	4,207	46,879	46,481	42,667	50,480
Accountants VI	1,612	4,960	4,890	4,451	5,350	59,519	58,677	53,414	64,200
Auditors I	1,855	1,761	1,708	1,583	1,934	21,128	20,492	18,992	23,208
Auditors II	3,627	2,155	2,097	1,925	2,375	25,854	25,166	23,100	28,500
Auditors III	5,185	2,604	2,550	2,280	2,840	31,246	30,600	27,360	34,075
Auditors IV	2,345	3,270	3,208	2,916	3,607	39,243	38,496	34,986	43,283
Public accountants I	10,596	1,638	1,624	1,566	1,708	19,657	19,492	18,792	20,492
Public accountants II	9,886	1,844	1,833	1,716	1,964	22,134	21,991	20,592	23,568
Public accountants III	8,221	2,158	2,102	1,950	2,310	25,891	25,224	23,400	27,720
Public accountants IV	3,877	2,618	2,582	2,332	2,791	31,416	30,988	27,989	33,487
Chief accountants I	764	3,130	3,128	2,916	3,499	37,557	37,536	34,986	41,983
Chief accountants II	1,127	3,876	3,957	3,499	4,166	46,517	47,481	41,983	49,996
Chief accountants III	648	5,039	5,072	4,500	5,586	60,466	60,864	54,000	67,026
Chief accountants IV	224	6,228	6,250	5,748	6,700	74,735	75,000	68,972	80,400
Attorneys									
Attorneys I	1,184	2,490	2,417	2,203	2,749	29,826	29,004	26,439	32,987
Attorneys II	3,046	3,105	3,078	2,749	3,410	37,256	36,936	32,987	40,920
Attorneys III	4,556	3,979	3,931	3,570	4,332	47,742	47,172	42,840	51,979
Attorneys IV	3,466	4,924	4,888	4,307	5,415	59,087	58,652	51,679	64,974
Attorneys V	1,823	6,150	6,123	5,434	6,649	73,805	73,471	65,208	79,786
Attorneys VI	481	7,641	7,477	6,856	8,358	91,690	89,722	82,267	100,293
Buyers									
Buyers I	6,373	1,741	1,686	1,520	1,891	20,896	20,232	18,240	22,691
Buyers II	18,061	2,134	2,115	1,898	2,332	25,606	25,374	22,774	27,989
Buyers III	18,224	2,648	2,600	2,356	2,891	31,774	31,198	28,276	34,692
Buyers IV	5,545	3,276	3,206	2,941	3,550	39,306	38,477	35,296	42,600
Programmers and systems analysts									
Computer programmers I	14,201	1,693	1,691	1,499	1,885	20,318	20,292	17,993	22,618
Computer programmers II	34,235	1,974	1,999	1,792	2,158	23,690	23,990	21,498	25,894
Computer programmers III	44,128	2,364	2,343	2,158	2,560	28,367	28,116	25,894	30,723
Computer programmers IV	19,279	2,809	2,817	2,595	3,034	33,708	33,804	31,140	36,408
Computer programmers V	8,517	3,441	3,468	3,248	3,700	41,288	41,618	38,976	44,400
Systems analysts I	20,649	2,350	2,315	2,120	2,525	28,197	27,781	25,440	30,303
Systems analysts II	42,666	2,789	2,758	2,526	3,004	33,465	33,096	30,314	36,048
Systems analysts III	34,202	3,305	3,284	3,002	3,565	39,663	39,413	36,026	42,783
Systems analysts IV	12,785	3,894	3,828	3,505	4,220	46,729	45,942	42,060	50,640
Systems analysts V	2,688	4,705	4,623	4,218	5,170	56,461	55,480	50,616	62,040
Systems analysts VI	179	5,734	5,656	5,265	6,177	68,809	67,872	63,182	74,126

See footnotes at end of table.

Table 1. Average salaries: United States—Continued

(Employment and average salaries for selected professional, administrative, technical, and clerical occupations in private industry,[1] United States, except Alaska and Hawaii, March 1985)

Occupation and level[2]	Number of employees[3]	Monthly salaries[4]				Annual salaries[4]			
		Mean[5]	Median[5]	Middle range[5]		Mean[5]	Median[5]	Middle range[5]	
				First quartile	Third quartile			First quartile	Third quartile
Personnel management									
Job analysts I	157	$1,731	$1,666	$1,541	$1,835	$20,774	$19,992	$18,493	$22,021
Job analysts II	472	1,967	1,883	1,666	2,160	23,602	22,591	19,992	25,923
Job analysts III	670	2,492	2,449	2,182	2,799	29,905	29,389	26,190	33,589
Job analysts IV	590	3,082	3,013	2,807	3,335	36,983	36,154	33,687	40,020
Directors of personnel I	1,767	3,098	2,982	2,666	3,464	37,173	35,786	31,987	41,563
Directors of personnel II	2,079	3,814	3,749	3,340	4,143	45,764	44,982	40,084	49,716
Directors of personnel III	1,233	4,943	4,853	4,519	5,278	59,317	58,235	54,228	63,335
Directors of personnel IV	363	5,889	5,800	5,270	6,497	70,663	69,600	63,240	77,969
Chemists and engineers									
Chemists I	3,096	1,886	1,847	1,667	2,067	22,631	22,167	20,000	24,803
Chemists II	5,768	2,227	2,200	1,999	2,434	26,722	26,400	23,990	29,205
Chemists III	9,609	2,705	2,660	2,407	3,016	32,461	31,920	28,888	36,189
Chemists IV	10,101	3,285	3,240	2,982	3,533	39,418	38,880	35,786	42,396
Chemists V	8,843	3,976	3,965	3,595	4,295	47,706	47,580	43,140	51,540
Chemists VI	4,174	4,851	4,822	4,320	5,323	58,210	57,864	51,840	63,874
Chemists VII	1,093	5,726	5,638	5,044	6,300	68,710	67,658	60,534	75,600
Engineers I	31,121	2,284	2,291	2,166	2,416	27,405	27,495	25,990	28,988
Engineers II	59,275	2,523	2,505	2,348	2,692	30,275	30,060	28,182	32,305
Engineers III	135,494	2,862	2,849	2,600	3,100	34,348	34,188	31,200	37,200
Engineers IV	148,785	3,416	3,400	3,115	3,700	40,991	40,800	37,380	44,400
Engineers V	106,966	4,030	3,998	3,660	4,373	48,366	47,981	43,920	52,479
Engineers VI	54,701	4,678	4,615	4,209	5,095	56,136	55,384	50,504	61,140
Engineers VII	13,958	5,470	5,386	4,940	5,915	65,641	64,632	59,276	70,980
Engineers VIII	2,490	6,350	6,222	5,750	6,796	76,205	74,667	69,000	81,553
Technical support									
Engineering technicians I	5,239	1,406	1,388	1,250	1,530	16,876	16,656	15,000	18,355
Engineering technicians II	18,697	1,612	1,585	1,421	1,777	19,339	19,024	17,052	21,318
Engineering technicians III	33,464	1,932	1,903	1,720	2,132	23,179	22,838	20,640	25,582
Engineering technicians IV	37,435	2,272	2,266	2,055	2,449	27,259	27,194	24,660	29,388
Engineering technicians V	19,717	2,615	2,600	2,394	2,799	31,386	31,200	28,728	33,588
Drafters I	2,135	1,101	1,083	953	1,170	13,208	12,999	11,439	14,039
Drafters II	8,190	1,374	1,357	1,213	1,517	16,488	16,289	14,559	18,199
Drafters III	19,336	1,667	1,647	1,473	1,809	20,006	19,758	17,673	21,707
Drafters IV	20,949	1,996	1,982	1,773	2,195	23,950	23,786	21,277	26,340
Drafters V	15,763	2,490	2,480	2,200	2,741	29,876	29,760	26,400	32,891
Computer operators I	9,305	1,139	1,116	988	1,253	13,670	13,390	11,851	15,037
Computer operators II	32,988	1,414	1,375	1,221	1,580	16,973	16,500	14,654	18,960
Computer operators III	23,039	1,722	1,683	1,499	1,900	20,664	20,192	17,993	22,800
Computer operators IV	8,573	2,001	1,979	1,787	2,158	24,016	23,748	21,444	25,896
Computer operators V	1,416	2,370	2,420	2,149	2,526	28,440	29,039	25,788	30,314
Photographers I	219	1,464	1,459	1,300	1,577	17,571	17,512	15,599	18,927
Photographers II	727	1,835	1,875	1,612	2,064	22,019	22,500	19,343	24,763
Photographers III	806	2,207	2,203	1,950	2,423	26,489	26,436	23,398	29,076
Photographers IV	365	2,517	2,542	2,218	2,794	30,210	30,504	26,622	33,531

See footnotes at end of table.

Table 1. Average salaries: United States—Continued

(Employment and average salaries for selected professional, administrative, technical, and clerical occupations in private industry,[1] United States, except Alaska and Hawaii, March 1985)

Occupation and level[2]	Number of employees[3]	Monthly salaries[4]				Annual salaries[4]			
		Mean[5]	Median[5]	Middle range[5]		Mean[5]	Median[5]	Middle range[5]	
				First quartile	Third quartile			First quartile	Third quartile
Clerical									
Accounting clerks I	27,038	$1,032	$984	$850	$1,187	$12,380	$11,803	$10,200	$14,247
Accounting clerks II	76,029	1,227	1,187	1,040	1,352	14,728	14,242	12,479	16,223
Accounting clerks III	50,107	1,444	1,405	1,231	1,596	17,327	16,864	14,767	19,152
Accounting clerks IV	17,868	1,759	1,711	1,515	1,981	21,106	20,532	18,180	23,771
File clerks I	16,778	842	810	715	920	10,101	9,720	8,579	11,046
File clerks II	8,781	986	924	847	1,050	11,836	11,086	10,165	12,600
File clerks III	1,962	1,226	1,166	1,044	1,345	14,707	13,987	12,533	16,140
Key entry operators I	45,527	1,100	1,057	916	1,212	13,200	12,687	10,996	14,544
Key entry operators II	29,908	1,383	1,328	1,179	1,558	16,600	15,932	14,143	18,696
Messengers	9,356	974	919	810	1,062	11,685	11,023	9,720	12,739
Personnel clerks/assistants I	1,787	1,169	1,127	1,027	1,252	14,023	13,519	12,323	15,027
Personnel clerks/assistants II	3,120	1,365	1,322	1,179	1,491	16,375	15,859	14,143	17,867
Personnel clerks/assistants III	2,545	1,572	1,545	1,374	1,731	18,870	18,540	16,493	20,778
Personnel clerks/assistants IV	1,353	1,863	1,847	1,670	2,050	22,355	22,163	20,040	24,594
Purchasing assistants I	3,804	1,364	1,300	1,179	1,473	16,363	15,599	14,143	17,679
Purchasing assistants II	3,798	1,761	1,748	1,501	1,987	21,135	20,976	18,011	23,839
Purchasing assistants III	1,062	2,346	2,302	2,089	2,674	28,150	27,624	25,067	32,084
Secretaries I	53,266	1,322	1,274	1,118	1,458	15,869	15,287	13,415	17,496
Secretaries II	61,039	1,477	1,450	1,277	1,636	17,721	17,400	15,324	19,656
Secretaries III	111,029	1,666	1,630	1,442	1,850	19,988	19,560	17,304	22,200
Secretaries IV	47,854	1,877	1,865	1,624	2,089	22,520	22,380	19,492	25,068
Secretaries V	17,227	2,184	2,157	1,914	2,430	26,210	25,860	22,968	29,160
Stenographers I	9,093	1,533	1,536	1,235	1,805	18,391	18,427	14,819	21,656
Stenographers II	5,966	1,743	1,742	1,578	1,862	20,914	20,904	18,936	22,339
Typists I	19,976	1,052	985	866	1,170	12,621	11,816	10,396	14,039
Typists II	13,119	1,321	1,275	1,088	1,497	15,847	15,300	13,056	17,964

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[1] For the scope of the survey, see table A-1 in appendix A.

[2] Occupational definitions appear in appendix C.

[3] Occupational employment estimates relate to the total in all establishments within the scope of the survey and not to the number actually surveyed. For further explanation, see appendix A.

[4] Salaries reported are standard salaries paid for standard work schedules; i.e., the straight-time salary corresponding to the employee's normal work schedule excluding overtime hours. Nonproduction bonuses are excluded, but cost-of-living payments and incentive earnings are included.

[5] The mean is computed for each job by totaling the earnings of all workers and dividing by the number of workers. The median designates position; one-half of the workers receive the same as or more and one-half receive the same as or less than the rate shown. The middle range is defined by two rates of pay; one-fourth of the workers earn the same as or less than the lower of these rates and one-fourth earn earn the same as or more than the higher rate.

Table 2. Average salaries: Metropolitan areas

(Employment and average salaries for selected professional, administrative, technical, and clerical occupations in private industry, metropolitan areas,[1] United States, except Alaska and Hawaii, March 1985)

Occupation and level[2]	Number of employees[3]	Monthly salaries[4]				Annual salaries[4]			
		Mean[5]	Median[5]	Middle range[5]		Mean[5]	Median[5]	Middle range[5]	
				First quartile	Third quartile			First quartile	Third quartile
Accountants and auditors									
Accountants I	11,584	$1,719	$1,708	$1,527	$1,875	$20,627	$20,492	$18,329	$22,500
Accountants II	20,978	2,124	2,093	1,883	2,335	25,489	25,112	22,591	28,015
Accountants III	33,065	2,513	2,493	2,207	2,766	30,156	29,916	26,489	33,187
Accountants IV	19,444	3,138	3,115	2,832	3,417	37,651	37,385	33,986	41,001
Accountants V	7,409	3,906	3,864	3,555	4,207	46,876	46,368	42,660	50,480
Accountants VI	1,559	4,956	4,890	4,450	5,350	59,468	58,677	53,400	64,200
Auditors I	1,562	1,764	1,724	1,541	1,960	21,165	20,692	18,493	23,520
Auditors II	3,394	2,158	2,118	1,925	2,375	25,891	25,415	23,100	28,500
Auditors III	4,936	2,595	2,550	2,278	2,832	31,144	30,600	27,336	33,986
Auditors IV	2,272	3,273	3,209	2,915	3,623	39,273	38,506	34,983	43,479
Public accountants I	10,414	1,636	1,624	1,566	1,708	19,636	19,492	18,792	20,492
Public accountants II	9,782	1,844	1,833	1,708	1,964	22,123	21,991	20,496	23,568
Public accountants III	8,069	2,157	2,100	1,950	2,308	25,882	25,200	23,400	27,696
Public accountants IV	3,813	2,618	2,582	2,332	2,791	31,411	30,988	27,969	33,467
Chief accountants I	548	3,308	3,325	3,013	3,499	39,702	39,900	36,157	41,983
Chief accountants II	1,007	3,877	3,875	3,499	4,195	46,525	46,500	41,983	50,340
Chief accountants III	566	5,123	5,102	4,582	5,639	61,471	61,224	54,978	67,673
Chief accountants IV	215	6,217	6,250	5,738	6,700	74,608	75,000	68,852	80,400
Attorneys									
Attorneys I	1,100	2,512	2,456	2,203	2,786	30,147	29,474	26,439	33,433
Attorneys II	2,959	3,108	3,078	2,749	3,414	37,292	36,936	32,987	40,973
Attorneys III	4,435	3,983	3,933	3,570	4,332	47,791	47,194	42,840	51,979
Attorneys IV	3,193	4,983	4,940	4,409	5,456	59,801	59,276	52,911	65,473
Attorneys V	1,798	6,144	6,123	5,423	6,630	73,723	73,471	65,076	79,560
Attorneys VI	481	7,641	7,477	6,856	8,358	91,690	89,722	82,267	100,293
Buyers									
Buyers I	5,779	1,755	1,686	1,524	1,907	21,060	20,232	18,293	22,884
Buyers II	15,294	2,161	2,135	1,924	2,339	25,927	25,620	23,091	28,069
Buyers III	16,348	2,686	2,647	2,395	2,916	32,235	31,759	28,739	34,993
Buyers IV	5,265	3,282	3,211	2,942	3,560	39,387	38,532	35,305	42,720
Programmers and systems analysts									
Computer programmers I	13,213	1,707	1,699	1,499	1,903	20,483	20,382	17,993	22,835
Computer programmers II	32,230	1,983	1,999	1,800	2,166	23,792	23,990	21,600	25,990
Computer programmers III	42,011	2,370	2,348	2,162	2,566	28,441	28,179	25,946	30,792
Computer programmers IV	18,869	2,814	2,820	2,600	3,037	33,770	33,840	31,198	36,449
Computer programmers V	8,446	3,440	3,467	3,245	3,700	41,282	41,608	38,940	44,400
Systems analysts I	18,728	2,354	2,310	2,116	2,540	28,243	27,720	25,390	30,480
Systems analysts II	39,985	2,798	2,766	2,532	3,007	33,571	33,196	30,389	36,086
Systems analysts III	32,559	3,313	3,291	3,009	3,575	39,751	39,488	36,103	42,900
Systems analysts IV	12,226	3,897	3,832	3,507	4,220	46,768	45,980	42,083	50,640
Systems analysts V	2,536	4,711	4,640	4,215	5,183	56,528	55,678	50,580	62,200
Systems analysts VI	175	5,718	5,656	5,260	6,169	68,614	67,872	63,121	74,023

See footnotes at end of table.

Table 2. Average salaries: Metropolitan areas—Continued

(Employment and average salaries for selected professional, administrative, technical, and clerical occupations in private industry, metropolitan areas,[1] United States, except Alaska and Hawaii, March 1985)

Occupation and level[2]	Number of employees[3]	Monthly salaries[4]				Annual salaries[4]			
		Mean[5]	Median[5]	Middle range[5]		Mean[5]	Median[5]	Middle range[5]	
				First quartile	Third quartile			First quartile	Third quartile
Personnel management									
Job analysts I	152	$1,739	$1,666	$1,541	$1,841	$20,866	$19,992	$18,493	$22,095
Job analysts II	453	1,969	1,883	1,666	2,149	23,629	22,591	19,992	25,790
Job analysts III	647	2,495	2,457	2,182	2,819	29,941	29,488	26,190	33,827
Job analysts IV	574	3,092	3,025	2,810	3,341	37,099	36,300	33,720	40,093
Directors of personnel I	1,184	3,085	2,978	2,678	3,387	37,019	35,736	32,137	40,644
Directors of personnel II	1,718	3,825	3,750	3,340	4,165	45,906	45,000	40,084	49,980
Directors of personnel III	1,061	4,942	4,831	4,465	5,278	59,304	57,977	53,579	63,335
Directors of personnel IV	341	5,877	5,748	5,265	6,539	70,526	68,972	63,175	78,469
Chemists and engineers									
Chemists I	2,765	1,883	1,844	1,666	2,050	22,591	22,131	19,992	24,600
Chemists II	5,260	2,228	2,201	1,985	2,440	26,730	26,406	23,820	29,280
Chemists III	8,216	2,728	2,682	2,416	3,043	32,738	32,187	28,988	36,516
Chemists IV	8,765	3,279	3,240	2,999	3,527	39,345	38,880	35,986	42,324
Chemists V	7,668	3,979	3,973	3,634	4,280	47,744	47,681	43,603	51,360
Chemists VI	3,665	4,877	4,872	4,383	5,350	58,521	58,469	52,594	64,200
Chemists VII	947	5,785	5,687	5,083	6,415	69,423	68,250	61,000	76,980
Engineers I	28,839	2,293	2,300	2,169	2,420	27,518	27,600	26,028	29,040
Engineers II	54,266	2,538	2,522	2,364	2,700	30,457	30,264	28,368	32,405
Engineers III	122,893	2,873	2,855	2,615	3,110	34,471	34,264	31,380	37,315
Engineers IV	138,679	3,428	3,414	3,128	3,708	41,134	40,973	37,536	44,496
Engineers V	102,762	4,039	4,000	3,665	4,382	48,463	48,006	43,982	52,579
Engineers VI	53,440	4,679	4,620	4,210	5,095	56,150	55,440	50,520	61,140
Engineers VII	13,787	5,474	5,394	4,940	5,925	65,682	64,722	59,276	71,100
Engineers VIII	2,458	6,354	6,237	5,750	6,796	76,247	74,848	69,000	81,553
Technical support									
Engineering technicians I	4,945	1,406	1,383	1,244	1,530	16,876	16,591	14,933	18,355
Engineering technicians II	16,076	1,625	1,610	1,430	1,797	19,498	19,320	17,159	21,561
Engineering technicians III	30,391	1,931	1,903	1,715	2,135	23,174	22,838	20,580	25,620
Engineering technicians IV	33,687	2,282	2,274	2,067	2,465	27,382	27,290	24,802	29,578
Engineering technicians V	18,662	2,623	2,608	2,406	2,807	31,474	31,296	28,868	33,687
Drafters I	2,037	1,104	1,083	960	1,186	13,244	12,999	11,522	14,226
Drafters II	7,481	1,383	1,368	1,213	1,547	16,591	16,416	14,559	18,563
Drafters III	17,021	1,685	1,666	1,437	1,830	20,219	19,992	17,845	21,957
Drafters IV	18,736	2,010	1,996	1,792	2,209	24,116	23,955	21,504	26,503
Drafters V	15,284	2,493	2,482	2,200	2,745	29,916	29,783	26,400	32,945
Computer operators I	8,688	1,151	1,123	997	1,270	13,808	13,478	11,959	15,240
Computer operators II	29,793	1,429	1,389	1,232	1,591	17,154	16,672	14,788	19,093
Computer operators III	21,732	1,723	1,684	1,499	1,899	20,676	20,212	17,993	22,791
Computer operators IV	8,340	2,004	1,982	1,788	2,161	24,044	23,784	21,459	25,929
Computer operators V	1,389	2,372	2,426	2,155	2,526	28,461	29,112	25,863	30,314
Photographers I	210	1,453	1,459	1,295	1,577	17,439	17,512	15,542	18,927
Photographers II	670	1,836	1,880	1,615	2,064	22,032	22,560	19,377	24,763
Photographers III	701	2,253	2,262	2,045	2,463	27,036	27,142	24,540	29,556
Photographers IV	317	2,580	2,600	2,360	2,823	30,959	31,198	28,320	33,881

See footnotes at end of table.

Table 2. Average salaries: Metropolitan areas—Continued

(Employment and average salaries for selected professional, administrative, technical, and clerical occupations in private industry, metropolitan areas,[1] United States, except Alaska and Hawaii, March 1985)

Occupation and level[2]	Number of employees[3]	Monthly salaries[4]				Annual salaries[4]			
		Mean[5]	Median[5]	Middle range[5]		Mean[5]	Median[5]	Middle range[5]	
				First quartile	Third quartile			First quartile	Third quartile
Clerical									
Accounting clerks I	24,645	$1,030	$985	$841	$1,192	$12,355	$11,820	$10,096	$14,299
Accounting clerks II	67,149	1,235	1,200	1,040	1,365	14,824	14,400	12,479	16,380
Accounting clerks III	44,838	1,451	1,416	1,250	1,600	17,407	16,993	14,994	19,200
Accounting clerks IV	16,036	1,781	1,732	1,539	1,984	21,367	20,784	18,468	23,806
File clerks I	16,156	845	815	721	920	10,143	9,780	8,657	11,046
File clerks II	8,433	986	920	849	1,049	11,829	11,046	10,191	12,588
File clerks III	1,916	1,224	1,157	1,042	1,345	14,684	13,883	12,505	16,140
Key entry operators I	40,942	1,105	1,058	923	1,222	13,265	12,695	11,071	14,658
Key entry operators II	28,426	1,389	1,331	1,183	1,567	16,671	15,973	14,194	18,799
Messengers	8,888	973	918	808	1,059	11,676	11,016	9,697	12,708
Personnel clerks/assistants I	1,523	1,176	1,131	1,039	1,273	14,108	13,571	12,469	15,276
Personnel clerks/assistants II	2,745	1,391	1,330	1,209	1,520	16,690	15,963	14,507	18,240
Personnel clerks/assistants III	2,131	1,584	1,574	1,416	1,741	19,006	18,892	16,993	20,892
Personnel clerks/assistants IV	1,240	1,869	1,860	1,670	2,058	22,429	22,316	20,040	24,696
Purchasing assistants I	3,262	1,381	1,333	1,200	1,484	16,571	15,994	14,400	17,813
Purchasing assistants II	3,570	1,773	1,754	1,517	2,002	21,281	21,048	18,199	24,024
Purchasing assistants III	1,058	2,346	2,300	2,089	2,674	28,149	27,599	25,062	32,087
Secretaries I	48,371	1,333	1,278	1,125	1,471	15,994	15,339	13,495	17,653
Secretaries II	58,398	1,479	1,456	1,286	1,640	17,749	17,471	15,434	19,680
Secretaries III	104,988	1,676	1,640	1,454	1,859	20,116	19,680	17,450	22,306
Secretaries IV	45,650	1,889	1,876	1,641	2,102	22,663	22,507	19,697	25,218
Secretaries V	16,636	2,200	2,166	1,928	2,440	26,397	25,990	23,136	29,280
Stenographers I	7,874	1,511	1,529	1,235	1,754	18,132	18,349	14,819	21,048
Stenographers II	5,773	1,745	1,742	1,583	1,862	20,943	20,904	18,992	22,344
Typists I	18,639	1,060	987	866	1,183	12,725	11,845	10,396	14,191
Typists II	12,728	1,318	1,276	1,095	1,497	15,820	15,308	13,135	17,964

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[1] For the scope of the survey, see table A-1 in appendix A.

[2] Occupational definitions appear in appendix C.

[3] Occupational employment estimates relate to the total in all establishments within the scope of the survey and not to the number actually surveyed. For further explanation, see appendix A.

[4] Salaries reported are standard salaries paid for standard work schedules; i.e., the straight-time salary corresponding to the employee's normal work schedule excluding overtime hours. Nonproduction bonuses are excluded, but cost-of-living payments and incentive earnings are included.

[5] The mean is computed for each job by totaling the earnings of all workers and dividing by the number of workers. The median designates position; one-half of the workers receive the same as or more and one-half receive the same as or less than the rate shown. The middle range is defined by two rates of pay; one-fourth of the workers earn the same as or less than the lower of these rates and one-fourth earn earn the same as or more than the higher rate.

Table 3. Average salaries: Large establishments

(Employment and average salaries for selected professional, administrative, technical, and clerical occupations in private industry,[1] establishments employing 2,500 workers or more,[2] United States, except Alaska and Hawaii, March 1985)

Occupation and level[3]	Number of employees[4]	Annual salaries[5]				Levels in large establishments as a percent of those in all establishments combined	
		Mean[6]	Median[6]	Middle range[6]		Employment	Mean salaries
				First quartile	Third quartile		
Accountants and auditors							
Accountants I	3,126	$21,695	$21,422	$19,882	$23,141	25	105
Accountants II	7,573	27,741	27,504	24,490	30,996	33	109
Accountants III	9,812	31,879	31,524	27,924	35,779	27	106
Accountants IV	6,707	38,547	37,985	34,033	42,516	32	103
Accountants V	2,896	47,987	47,220	42,689	51,900	37	102
Accountants VI	802	59,689	57,886	52,479	66,274	50	100
Auditors I	601	21,710	20,635	18,900	24,022	32	103
Auditors II	1,079	27,125	26,150	23,016	30,300	30	105
Auditors III	1,996	32,981	32,400	28,219	37,316	38	106
Auditors IV	995	40,087	38,892	34,986	44,982	42	102
Chief accountants III	104	62,820	60,416	55,682	67,141	16	104
Chief accountants IV	64	75,863	74,220	65,329	84,965	29	102
Attorneys							
Attorneys I	305	33,844	33,687	29,388	37,939	26	113
Attorneys II	886	40,647	39,984	36,000	45,091	29	109
Attorneys III	1,494	50,452	49,561	44,208	56,220	33	106
Attorneys IV	1,346	60,504	58,976	52,854	66,900	39	102
Attorneys V	1,028	74,565	73,609	66,036	81,268	56	101
Attorneys VI	301	93,000	92,743	84,428	102,180	63	101
Buyers							
Buyers I	1,430	22,389	22,098	19,758	24,288	22	107
Buyers II	5,189	27,039	26,599	24,072	29,236	29	106
Buyers III	7,180	33,063	32,518	29,144	36,339	39	104
Buyers IV	3,481	39,092	38,280	34,629	42,494	63	99
Programmers and systems analysts							
Computer programmers I	4,392	21,968	21,630	19,804	24,139	31	108
Computer programmers II	11,826	25,305	25,248	23,328	27,100	35	107
Computer programmers III	17,691	29,778	29,424	27,475	31,848	40	105
Computer programmers IV	10,514	34,563	34,500	32,220	36,792	55	103
Computer programmers V	6,037	41,766	41,820	39,481	44,380	71	101
Systems analysts I	8,570	29,402	28,380	26,040	31,680	42	104
Systems analysts II	18,428	34,801	34,651	31,512	37,240	43	104
Systems analysts III	15,593	40,713	40,460	37,328	43,729	46	103
Systems analysts IV	7,193	47,651	46,844	43,440	51,420	56	102
Systems analysts V	1,682	58,750	57,573	52,360	64,074	63	104
Systems analysts VI	152	68,832	67,760	63,750	73,873	85	100

See footnotes at end of table.

Table 3. Average salaries: Large establishments—Continued

(Employment and average salaries for selected professional, administrative, technical, and clerical occupations in private industry,[1] establishments employing 2,500 workers or more,[2] United States, except Alaska and Hawaii, March 1985)

Occupation and level[3]	Number of employees[4]	Annual salaries[5]				Levels in large establishments as a percent of those in all establishments combined	
		Mean[6]	Median[6]	Middle range[6]		Employment	Mean salaries
				First quartile	Third quartile		
Personnel management							
Job analysts II	172	$25,630	$25,729	$21,907	$28,897	36	109
Job analysts III	367	30,831	30,000	26,310	34,317	55	103
Job analysts IV	378	37,963	36,991	34,386	40,699	64	103
Directors of personnel II	143	50,898	49,800	46,981	53,575	7	111
Directors of personnel III	232	62,911	60,912	55,058	70,683	19	106
Directors of personnel IV	104	78,720	76,992	70,798	86,643	29	111
Chemists and engineers							
Chemists I	657	24,923	24,690	22,591	27,192	21	110
Chemists II	1,751	29,368	29,437	26,820	32,477	30	110
Chemists III	2,640	35,084	35,586	31,311	39,000	27	108
Chemists IV	3,238	41,335	41,461	37,800	44,280	32	105
Chemists V	3,056	49,481	49,241	45,624	52,992	35	104
Chemists VI	1,229	59,465	59,700	54,496	63,600	29	102
Chemists VII	502	71,729	69,104	66,672	77,441	46	104
Engineers I	18,119	27,803	27,755	26,489	29,040	58	101
Engineers II	30,854	30,721	30,548	28,858	32,549	52	101
Engineers III	65,232	34,747	34,603	31,848	37,485	48	101
Engineers IV	79,456	41,311	41,160	37,885	44,496	53	101
Engineers V	56,792	48,348	48,204	44,100	52,360	53	100
Engineers VI	33,263	56,213	55,560	50,880	60,960	61	100
Engineers VII	7,674	65,226	64,095	59,280	70,091	55	99
Engineers VIII	1,231	76,591	74,170	68,739	82,329	49	101
Technical support							
Engineering technicians I	1,650	17,171	16,587	15,287	18,573	31	102
Engineering technicians II	6,127	20,291	19,966	17,958	22,560	33	105
Engineering technicians III	13,820	23,504	23,138	20,798	25,980	41	101
Engineering technicians IV	20,741	27,582	27,369	25,000	30,019	55	101
Engineering technicians V	13,406	31,305	31,079	28,723	33,648	68	100
Drafters I	206	15,021	14,148	13,103	17,289	10	114
Drafters II	1,923	17,706	17,419	14,820	20,356	23	107
Drafters III	5,506	21,580	21,600	18,900	23,897	28	108
Drafters IV	7,762	25,002	24,750	22,254	27,915	37	104
Drafters V	8,131	31,115	30,678	27,541	34,577	52	104
Computer operators I	2,560	15,066	14,559	13,085	16,794	28	110
Computer operators II	8,024	19,434	19,602	16,431	21,708	24	115
Computer operators III	7,460	22,645	21,942	19,343	25,140	32	110
Computer operators IV	4,704	25,073	24,588	22,217	27,089	55	104
Computer operators V	986	28,837	29,555	26,244	30,314	70	101
Photographers I	78	17,270	16,639	15,000	19,300	36	98
Photographers II	277	23,693	23,502	21,276	26,090	38	108
Photographers III	444	26,896	27,298	24,698	28,998	55	102
Photographers IV	300	30,147	29,964	26,591	33,850	82	100

See footnotes at end of table.

Table 3. Average salaries: Large establishments—Continued

(Employment and average salaries for selected professional, administrative, technical, and clerical occupations in private industry,[1] establishments employing 2,500 workers or more,[2] United States, except Alaska and Hawaii, March 1985)

Occupation and level[3]	Number of employees[4]	Annual salaries[5]				Levels in large establishments as a percent of those in all establishments combined	
		Mean[6]	Median[6]	Middle range[6]		Employment	Mean salaries
				First quartile	Third quartile		
Clerical							
Accounting clerks I	6,854	$15,265	$15,287	$13,519	$16,639	25	123
Accounting clerks II	13,693	17,512	16,802	14,330	20,611	18	119
Accounting clerks III	12,511	19,124	18,420	16,500	21,916	25	110
Accounting clerks IV	7,744	22,951	22,241	19,711	25,898	43	109
File clerks I	1,136	11,657	10,696	9,520	13,369	7	115
File clerks II	1,953	13,275	11,880	10,399	14,559	22	112
File clerks III	638	15,933	14,544	12,739	18,600	33	108
Key entry operators I	8,466	15,559	14,961	12,852	17,783	19	118
Key entry operators II	10,042	18,736	18,500	15,287	21,214	34	113
Messengers	2,920	13,226	12,234	10,405	15,366	31	113
Personnel clerks/assistants I	262	14,469	14,039	12,480	15,840	15	103
Personnel clerks/assistants II	589	18,836	18,251	15,391	22,098	19	115
Personnel clerks/assistants III	639	20,374	20,307	18,147	22,612	25	108
Personnel clerks/assistants IV	443	24,812	24,702	22,800	26,098	33	111
Purchasing assistants I	881	19,549	18,300	15,807	22,867	23	119
Purchasing assistants II	1,709	23,032	23,472	19,800	26,270	45	109
Purchasing assistants III	1,033	28,263	27,713	25,234	32,263	97	100
Secretaries I	19,125	17,781	16,847	14,642	19,860	36	112
Secretaries II	21,392	18,436	17,880	15,911	20,484	35	104
Secretaries III	42,953	21,483	20,880	18,459	24,272	39	107
Secretaries IV	20,424	23,802	23,688	20,928	26,400	43	106
Secretaries V	7,673	27,712	27,491	24,022	31,080	45	106
Stenographers I	5,195	18,016	18,427	14,520	21,032	57	98
Stenographers II	4,759	21,095	20,904	19,083	23,086	80	101
Typists I	5,504	14,260	12,995	11,075	15,828	28	113
Typists II	5,876	17,065	16,452	13,800	19,962	45	108

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[1] For the scope of the survey, see table A-1 in appendix A.

[2] Includes data from some large companies that provide companywide data not identified by size of establishment.

[3] Occupational definitions appear in appendix C.

[4] Occupational employment estimates relate to the total in all establishments within the scope of the survey and not to the number actually surveyed. For further explanation, see appendix A.

[5] Salaries reported are standard salaries paid for standard work schedules; i.e., the straight-time salary corresponding to the employee's normal work schedule excluding overtime hours. Nonproduction bonuses are excluded, but cost-of-living payments and incentive earnings are included.

[6] The mean is computed for each job by totaling the earnings of all workers and dividing by the number of workers. The median designates position; one-half of the workers receive the same as or more and one-half receive the same as or less than the rate shown. The middle range is defined by two rates of pay; one-fourth of the workers earn the same as or less than the lower of these rates and one-fourth earn earn the same as or more than the higher rate.

Table 4. Employment distribution by salary: Professional and administrative occupations

(Percent distribution of employees in selected professional and administrative occupations by annual salary, United States, except Alaska and Hawaii,[1] March 1985)

Annual salary	Accountants						Chief accountants			
	I	II	III	IV	V	VI	I	II	III	IV
Number of employees	12,465	22,874	36,599	21,232	7,841	1,612	764	1,127	648	224
Average annual salary	$20,577	$25,349	$30,037	$37,607	$46,879	$59,519	$37,557	$48,517	$60,466	$74,735
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under $15,000	2.4	-	-	-	-	-	-	-	-	-
$15,000 and under $16,500	6.6	[2] .4	-	-	-	-	-	-	-	-
$16,500 and under $18,000	14.0	1.6	-	-	-	-	-	-	-	-
$18,000 and under $19,500	14.3	4.4	[2] .3	-	-	-	-	-	-	-
$19,500 and under $21,000	21.0	7.9	1.0	-	-	-	-	-	-	-
$21,000 and under $22,500	16.4	10.5	3.0	-	-	-	-	-	-	-
$22,500 and under $24,000	12.5	15.7	5.4	-	-	-	-	-	-	-
$24,000 and under $25,500	6.0	14.8	8.8	-	-	-	-	-	-	-
$25,500 and under $27,000	3.7	14.3	10.9	[2] 1.5	-	-	-	-	-	-
$27,000 and under $28,500	1.7	9.5	11.7	2.3	-	-	3.5	-	-	-
$28,500 and under $30,000	[2] 1.4	6.9	12.7	3.8	-	-	8.8	-	-	-
$30,000 and under $31,500	-	4.9	10.6	4.1	-	-	5.4	-	-	-
$31,500 and under $33,000	-	5.1	10.3	8.4	[2] .9	-	4.2	-	-	-
$33,000 and under $34,500	-	1.7	6.9	9.2	2.0	-	1.6	1.3	-	-
$34,500 and under $36,000	-	1.1	5.7	11.6	2.3	-	15.7	1.3	-	-
$36,000 and under $37,500	-	[2] 1.0	4.8	10.3	1.7	-	10.7	4.3	-	-
$37,500 and under $39,000	-	-	3.5	12.1	3.5	-	8.9	.5	4.2	-
$39,000 and under $40,500	-	-	1.6	8.9	5.6	-	9.6	11.0	-	-
$40,500 and under $42,000	-	-	[2] 2.6	8.5	6.0	-	14.8	9.8	-	-
$42,000 and under $43,500	-	-	-	6.5	8.4	-	14.5	8.0	-	-
$43,500 and under $45,000	-	-	-	4.3	9.6	[2] 2.1	-	7.8	1.2	-
$45,000 and under $46,500	-	-	-	3.2	10.1	1.3	-	3.1	-	-
$46,500 and under $48,000	-	-	-	1.6	9.1	3.9	-	12.8	.9	-
$48,000 and under $49,500	-	-	-	1.0	8.1	4.2	-	10.4	2.5	-
$49,500 and under $51,000	-	-	-	[2] 2.7	10.0	4.5	-	8.6	2.2	-
$51,000 and under $52,500	-	-	-	-	6.2	6.0	-	7.1	4.6	-
$52,500 and under $54,000	-	-	-	-	4.0	4.5	2.4	1.9	8.0	-
$54,000 and under $55,500	-	-	-	-	3.2	4.9	-	1.2	6.6	-
$55,500 and under $57,000	-	-	-	-	2.4	8.1	-	3.8	7.9	-
$57,000 and under $58,500	-	-	-	-	1.8	8.6	-	5.9	8.3	-
$58,500 and under $60,000	-	-	-	-	1.0	10.5	-	[2] 1.1	2.3	[2] .4
$60,000 and under $61,500	-	-	-	-	[2] 3.7	5.1	-	-	2.9	8.0
$61,500 and under $63,000	-	-	-	-	-	5.8	-	-	2.6	8.0
$63,000 and under $64,500	-	-	-	-	-	6.1	-	-	6.0	1.3
$64,500 and under $66,000	-	-	-	-	-	4.4	-	-	9.9	.9
$66,000 and under $67,500	-	-	-	-	-	4.2	-	-	5.1	.9
$67,500 and under $69,000	-	-	-	-	-	3.0	-	-	6.2	9.4
$69,000 and under $70,500	-	-	-	-	-	2.8	-	-	4.8	7.1
$70,500 and under $72,000	-	-	-	-	-	2.4	-	-	4.9	10.3
$72,000 and under $73,500	-	-	-	-	-	2.5	-	-	.6	.4
$73,500 and under $75,000	-	-	-	-	-	1.6	-	-	2.8	1.8
$75,000 and under $76,500	-	-	-	-	-	[2] 3.5	-	-	1.5	11.2
$76,500 and under $78,000	-	-	-	-	-	-	-	-	[2] 1.9	2.7
$78,000 and under $79,500	-	-	-	-	-	-	-	-	-	9.8
$79,500 and under $81,000	-	-	-	-	-	-	-	-	-	6.7
$81,000 and under $82,500	-	-	-	-	-	-	-	-	-	.4
$82,500 and under $84,000	-	-	-	-	-	-	-	-	-	7.1
$84,000 and under $85,500	-	-	-	-	-	-	-	-	-	2.2
$85,500 and under $87,000	-	-	-	-	-	-	-	-	-	3.1
$87,000 and under $88,500	-	-	-	-	-	-	-	-	-	.4
$88,500 and under $90,000	-	-	-	-	-	-	-	-	-	-
$90,000 and under $91,500	-	-	-	-	-	-	-	-	-	1.8
$91,500 and under $93,000	-	-	-	-	-	-	-	-	-	.9
$93,000 and under $94,500	-	-	-	-	-	-	-	-	-	1.6
$94,500 and over	-	-	-	-	-	-	-	-	-	3.0

See footnotes at end of table.

Table 4. Employment distribution by salary: Professional and administrative occupations—Continued

(Percent distribution of employees in selected professional and administrative occupations by annual salary, United States, except Alaska and Hawaii,[1] March 1985)

Annual salary	Auditors				Public accountants			
	I	II	III	IV	I	II	III	IV
Number of employees	1,855	3,627	5,185	2,345	10,596	9,886	8,221	3,877
Average annual salary	$21,128	$25,854	$31,246	$39,243	$19,657	$22,134	$25,891	$31,416
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
$12,000 and under $13,000	.3	–	–	–	–	–	–	–
$13,000 and under $14,000	1.4	–	–	–	.6	–	–	–
$14,000 and under $15,000	.9	–	–	–	1.5	–	–	–
$15,000 and under $16,000	3.3	–	–	–	1.6	–	–	–
$16,000 and under $17,000	7.2	[2] .6	–	–	2.4	.2	–	–
$17,000 and under $18,000	6.7	1.7	–	–	7.5	1.8	–	–
$18,000 and under $19,000	8.1	2.0	–	–	20.2	1.2	–	–
$19,000 and under $20,000	6.9	4.8	–	–	32.7	12.6	1.0	–
$20,000 and under $21.000	22.6	3.1	–	–	18.2	16.2	2.9	–
$21,000 and under $22,000	7.2	4.1	[2] 1.1	–	4.9	24.0	5.3	–
$22,000 and under $23,000	7.9	8.2	3.2	–	6.0	13.4	12.0	.6
$23,000 and under $24,000	5.1	9.8	3.7	–	2.2	13.6	13.5	3.3
$24,000 and under $25,000	8.8	13.6	4.5	–	1.6	8.5	12.9	.9
$25,000 and under $26,000	4.9	10.5	5.1	–	[2] .3	4.9	13.2	5.3
$26,000 and under $27,000	2.9	5.0	5.1	–	–	2.0	8.5	6.7
$27,000 and under $28,000	1.6	6.6	7.0	[2] 1.8	–	[2] 1.6	9.3	9.4
$28,000 and under $29,000	.1	9.9	8.4	1.2	–	–	8.1	8.5
$29,000 and under $30,000	2.2	8.1	7.0	2.3	–	–	3.3	8.0
$30,000 and under $31,000	[2] 1.8	3.8	8.1	3.0	–	–	2.6	9.5
$31,000 and under $32,000	–	1.8	6.9	3.6	–	–	2.7	11.8
$32,000 and under $33,000	–	2.9	7.8	4.6	–	–	1.1	9.9
$33,000 and under $34,000	–	1.3	6.6	4.8	–	–	[2] 3.6	4.6
$34,000 and under $35,000	–	[2] 4.2	4.5	5.2	–	–	–	5.9
$35,000 and under $36,000	–	–	3.0	6.1	–	–	–	2.7
$36,000 and under $37,000	–	–	3.4	6.5	–	–	–	1.6
$37,000 and under $38,000	–	–	2.8	6.1	–	–	–	2.8
$38,000 and under $39,000	–	–	2.8	8.1	–	–	–	1.5
$39,000 and under $40,000	–	–	1.5	7.8	–	–	–	1.0
$40,000 and under $41,000	–	–	1.3	3.0	–	–	–	.9
$41,000 and under $42,000	–	–	1.2	3.8	–	–	–	1.2
$42,000 and under $43,000	–	–	1.6	5.6	–	–	–	1.2
$43,000 and under $44,000	–	–	.7	4.6	–	–	–	[2] 2.7
$44,000 and under $45,000	–	–	.4	4.4	–	–	–	–
$45,000 and under $46,000	–	–	1.1	4.9	–	–	–	–
$46,000 and under $47,000	–	–	[2] 1.2	2.1	–	–	–	–
$47,000 and under $48,000	–	–	–	1.7	–	–	–	–
$48,000 and under $49,000	–	–	–	1.6	–	–	–	–
$49,000 and under $50,000	–	–	–	1.2	–	–	–	–
$50,000 and under $51,000	–	–	–	1.4	–	–	–	–
$51,000 and under $52,000	–	–	–	.8	–	–	–	–
$52,000 and under $53,000	–	–	–	1.7	–	–	–	–
$53,000 and over	–	–	–	2.1	–	–	–	–

See footnotes at end of table.

Table 4. Employment distribution by salary: Professional and administrative occupations—Continued

(Percent distribution of employees in selected professional and administrative occupations by annual salary, United States, except Alaska and Hawaii,[1] March 1985)

Annual salary	Job analysts				Directors of personnel			
	I	II	III	IV	I	II	III	IV
Number of employees	157	472	670	590	1,767	2,079	1,233	363
Average annual salary	$20,774	$23,602	$29,905	$36,983	$37,173	$45,764	$59,317	$70,663
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
$15,000 and under $16,500	3.2	–	–	–	–	–	–	–
$16,500 and under $18,000	9.6	3.8	–	–	–	–	–	–
$18,000 and under $19,500	28.7	12.5	1.0	–	–	–	–	–
$19,500 and under $21,000	32.5	19.9	1.6	–	–	–	–	–
$21,000 and under $22,500	4.5	11.7	4.0	–	–	–	–	–
$22,500 and under $24,000	6.4	12.5	5.2	.2	–	–	–	–
$24,000 and under $25,500	3.8	12.1	7.6	1.9	1.7	–	–	–
$25,500 and under $27,000	2.5	8.1	11.5	2.9	.6	–	–	–
$27,000 and under $28,500	.6	4.9	11.3	.8	2.6	–	–	–
$28,500 and under $30,000	1.9	4.7	12.5	2.5	7.9	–	–	–
$30,000 and under $31,500	6.4	2.8	10.7	3.2	6.7	[2] 1.2	–	–
$31,500 and under $33,000	–	2.5	7.3	6.8	14.0	4.0	–	–
$33,000 and under $34,500	–	3.6	8.7	16.8	7.0	1.2	–	–
$34,500 and under $36,000	–	[2] 1.1	6.3	12.2	11.3	2.8	–	–
$36,000 and under $37,500	–	–	3.6	13.1	9.5	4.4	–	–
$37,500 and under $39,000	–	–	3.6	9.3	7.3	3.9	–	–
$39,000 and under $40,500	–	–	1.9	8.1	3.5	8.9	–	–
$40,500 and under $42,000	–	–	1.5	3.4	4.2	5.7	[2] 1.5	–
$42,000 and under $43,500	–	–	[2] 1.5	4.6	8.3	8.6	1.1	–
$43,500 and under $45,000	–	–	–	2.4	4.0	10.3	1.5	–
$45,000 and under $46,500	–	–	–	4.1	.7	6.0	.9	–
$46,500 and under $48,000	–	–	–	3.9	3.5	7.0	4.5	1.1
$48,000 and under $49,500	–	–	–	2.5	1.3	10.7	.8	–
$49,500 and under $51,000	–	–	–	1.0	1.5	2.7	2.8	4.1
$51,000 and under $52,500	–	–	–	[2] .3	2.8	3.6	5.3	–
$52,500 and under $54,000	–	–	–	–	[2] 1.7	3.5	6.2	.3
$54,000 and under $55,500	–	–	–	–	–	5.3	5.7	1.7
$55,500 and under $57,000	–	–	–	–	–	3.3	7.3	–
$57,000 and under $58,500	–	–	–	–	–	2.1	14.6	8.0
$58,500 and under $60,000	–	–	–	–	–	2.6	13.4	1.9
$60,000 and under $61,500	–	–	–	–	–	[2] 2.3	3.6	3.0
$61,500 and under $63,000	–	–	–	–	–	–	4.5	2.8
$63,000 and under $64,500	–	–	–	–	–	–	3.2	5.5
$64,500 and under $66,000	–	–	–	–	–	–	8.7	2.5
$66,000 and under $67,500	–	–	–	–	–	–	2.0	10.5
$67,500 and under $69,000	–	–	–	–	–	–	1.5	7.2
$69,000 and under $70,500	–	–	–	–	–	–	1.7	10.7
$70,500 and under $72,000	–	–	–	–	–	–	1.0	4.1
$72,000 and under $73,500	–	–	–	–	–	–	1.6	2.5
$73,500 and under $75,000	–	–	–	–	–	–	3.0	5.0
$75,000 and under $76,500	–	–	–	–	–	–	.6	.6
$76,500 and under $78,000	–	–	–	–	–	–	1.6	3.9
$78,000 and under $79,500	–	–	–	–	–	–	1.0	3.3
$79,500 and under $81,000	–	–	–	–	–	–	[2] 2.3	.6
$81,000 and under $82,500	–	–	–	–	–	–	–	7.2
$82,500 and under $84,000	–	–	–	–	–	–	–	1.9
$84,000 and under $85,500	–	–	–	–	–	–	–	.8
$85,500 and under $87,000	–	–	–	–	–	–	–	3.9
$87,000 and under $88,500	–	–	–	–	–	–	–	.8
$88,500 and under $90,000	–	–	–	–	–	–	–	.3
$90,000 and under $91,500	–	–	–	–	–	–	–	1.1
$91,500 and under $93,000	–	–	–	–	–	–	–	1.1
$93,000 and under $94,500	–	–	–	–	–	–	–	.8
$94,500 and under $96,000	–	–	–	–	–	–	–	.6
$96,000 and under $97,500	–	–	–	–	–	–	–	–
$97,500 and under $99,000	–	–	–	–	–	–	–	–
$99,000 and under $100,500	–	–	–	–	–	–	–	.8
$100,500 and under $102,000	–	–	–	–	–	–	–	1.1
$102,000 and over	–	–	–	–	–	–	–	.6

See footnotes at end of table.

Table 4. Employment distribution by salary: Professional and administrative occupations—Continued

(Percent distribution of employees in selected professional and administrative occupations by annual salary, United States, except Alaska and Hawaii,[1] March 1985)

Annual salary	Attorneys					
	I	II	III	IV	V	VI
Number of employees	1,184	3,046	4,556	3,466	1,823	481
Average annual salary	$29,886	$37,256	$47,742	$59,067	$73,805	$91,690
Total	100.0	100.0	100.0	100.0	100.0	100.0
Under $20,000	3.0	-	-	-	-	-
$20,000 and under $22,000	2.0	-	-	-	-	-
$22,000 and under $24,000	5.7	-	-	-	-	-
$24,000 and under $26,000	9.2	2.4	-	-	-	-
$26,000 and under $28,000	20.2	3.0	-	-	-	-
$28,000 and under $30,000	15.6	4.3	-	-	-	-
$30,000 and under $32,000	14.4	9.3	1.2	-	-	-
$32,000 and under $34,000	9.0	13.7	.9	-	-	-
$34,000 and under $36,000	7.8	14.6	3.1	-	-	-
$36,000 and under $38,000	4.8	12.1	3.4	-	-	-
$38,000 and under $40,000	3.0	13.4	6.7	-	-	-
$40,000 and under $42,000	2.7	9.7	5.6	[2] 1.1	-	-
$42,000 and under $44,000	1.4	3.4	13.2	1.4	-	-
$44,000 and under $46,000	[2] 1.3	4.5	9.4	2.8	-	-
$46,000 and under $48,000	-	3.3	12.2	4.6	-	-
$48,000 and under $50,000	-	2.6	11.1	8.7	-	-
$50,000 and under $52,000	-	2.0	9.6	7.6	[2] .9	-
$52,000 and under $54,000	-	[2] 1.7	5.0	6.3	1.2	-
$54,000 and under $56,000	-	-	5.9	9.0	2.0	-
$56,000 and under $58,000	-	-	4.1	7.3	1.9	-
$58,000 and under $60,000	-	-	2.6	8.8	2.5	-
$60,000 and under $62,000	-	-	2.2	6.5	6.7	-
$62,000 and under $64,000	-	-	.9	6.3	3.2	-
$64,000 and under $66,000	-	-	1.2	7.8	7.8	-
$66,000 and under $68,000	-	-	[2] 1.9	5.8	4.5	[2] 1.0
$68,000 and under $70,000	-	-	-	4.2	7.0	4.4
$70,000 and under $72,000	-	-	-	2.3	6.9	1.0
$72,000 and under $74,000	-	-	-	2.4	8.6	.2
$74,000 and under $76,000	-	-	-	2.3	9.7	2.7
$76,000 and under $78,000	-	-	-	.7	7.6	2.5
$78,000 and under $80,000	-	-	-	1.5	5.7	6.9
$80,000 and under $82,000	-	-	-	[2] 2.7	4.2	5.0
$82,000 and under $84,000	-	-	-	-	3.2	6.4
$84,000 and under $86,000	-	-	-	-	3.1	6.7
$86,000 and under $88,000	-	-	-	-	2.5	5.8
$88,000 and under $90,000	-	-	-	-	1.3	8.7
$90,000 and under $92,000	-	-	-	-	2.5	3.7
$92,000 and under $94,000	-	-	-	-	1.6	4.4
$94,000 and under $96,000	-	-	-	-	2.1	6.9
$96,000 and under $98,000	-	-	-	-	1.7	4.0
$98,000 and under $100,000	-	-	-	-	[2] 1.9	4.6
$100,000 and under $102,000	-	-	-	-	-	3.5
$102,000 and under $104,000	-	-	-	-	-	5.0
$104,000 and under $106,000	-	-	-	-	-	2.7
$106,000 and under $108,000	-	-	-	-	-	1.2
$108,000 and under $110,000	-	-	-	-	-	3.7
$110,000 and under $112,000	-	-	-	-	-	1.7
$112,000 and under $114,000	-	-	-	-	-	1.5
$114,000 and under $116,000	-	-	-	-	-	1.9
$116,000 and under $118,000	-	-	-	-	-	1.5
$118,000 and under $120,000	-	-	-	-	-	.4
$120,000 and under $122,000	-	-	-	-	-	-
$122,000 and under $124,000	-	-	-	-	-	.4
$124,000 and under $126,000	-	-	-	-	-	1.2
$126,000 and over	-	-	-	-	-	.4

See footnotes at end of table.

Table 4. Employment distribution by salary: Professional and administrative occupations—Continued

(Percent distribution of employees in selected professional and administrative occupations by annual salary, United States, except Alaska and Hawaii,[1] March 1985)

Annual salary	Buyers				Computer programmers				
	I	II	III	IV	I	II	III	IV	V
Number of employees	6,373	18,061	18,224	5,545	14,201	34,235	44,128	19,279	8,517
Average annual salary	$20,896	$25,606	$31,774	$39,306	$20,318	$23,690	$28,367	$33,706	$41,288
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under $14,000	–	–	–	–	1.6	–	–	–	–
$14,000 and under $15,000	2.7	–	–	–	5.2	[2] .7	–	–	–
$15,000 and under $16,000	1.1	–	–	–	3.2	1.0	–	–	–
$16,000 and under $17,000	6.9	–	–	–	7.4	1.6	–	–	–
$17,000 and under $18,000	9.1	[2] 2.2	–	–	10.4	1.6	–	–	–
$18,000 and under $19,000	13.8	1.5	–	–	9.2	4.4	–	–	–
$19,000 and under $20,000	13.9	4.6	–	–	10.8	4.9	[2] 1.3	–	–
$20,000 and under $21,000	11.2	4.5	–	–	11.2	6.3	1.1	–	–
$21,000 and under $22,000	9.1	5.9	–	–	11.4	10.5	1.8	–	–
$22,000 and under $23,000	9.1	8.9	[2] 1.5	–	9.0	9.7	2.7	–	–
$23,000 and under $24,000	6.7	9.0	2.3	–	6.3	12.0	5.3	[2] 1.4	–
$24,000 and under $25,000	4.9	10.7	3.2	–	5.2	13.1	6.5	1.1	–
$25,000 and under $26,000	3.7	10.2	4.0	–	4.0	11.2	8.9	.8	–
$26,000 and under $27,000	2.2	10.1	5.7	–	2.1	8.2	9.0	1.8	–
$27,000 and under $28,000	1.2	8.3	5.3	–	2.1	6.1	12.0	3.0	–
$28,000 and under $29,000	.4	5.9	9.3	[2] 1.4	[2] 1.0	3.3	10.2	3.3	–
$29,000 and under $30,000	.7	4.6	8.6	2.4	–	2.1	9.5	5.1	[2] 1.8
$30,000 and under $31,000	1.6	3.8	8.8	1.9	–	1.7	8.7	7.4	1.3
$31,000 and under $32,000	[2] 1.7	2.5	7.3	2.7	–	1.0	6.8	9.1	1.0
$32,000 and under $33,000	–	1.6	7.7	3.9	–	[2] .8	5.1	9.0	.9
$33,000 and under $34,000	–	1.9	7.4	6.5	–	–	3.5	10.1	1.4
$34,000 and under $35,000	–	[2] 3.8	6.4	4.1	–	–	2.3	10.4	2.3
$35,000 and under $36,000	–	–	5.0	8.5	–	–	1.7	8.3	2.9
$36,000 and under $37,000	–	–	3.4	7.1	–	–	1.3	9.2	3.4
$37,000 and under $38,000	–	–	2.9	6.7	–	–	[2] 2.1	7.1	5.3
$38,000 and under $39,000	–	–	2.2	9.7	–	–	–	4.0	5.1
$39,000 and under $40,000	–	–	2.3	6.8	–	–	–	3.8	9.2
$40,000 and under $41,000	–	–	1.5	5.8	–	–	–	2.1	9.4
$41,000 and under $42,000	–	–	1.1	3.8	–	–	–	[2] 2.9	9.0
$42,000 and under $43,000	–	–	1.3	6.0	–	–	–	–	9.6
$43,000 and under $44,000	–	–	[2] 2.9	5.9	–	–	–	–	9.1
$44,000 and under $45,000	–	–	–	3.0	–	–	–	–	8.3
$45,000 and under $46,000	–	–	–	1.9	–	–	–	–	7.9
$46,000 and under $47,000	–	–	–	1.7	–	–	–	–	4.9
$47,000 and under $48,000	–	–	–	.9	–	–	–	–	3.3
$48,000 and under $49,000	–	–	–	1.3	–	–	–	–	1.8
$49,000 and under $50,000	–	–	–	1.2	–	–	–	–	1.2
$50,000 and under $51,000	–	–	–	.7	–	–	–	–	[2] .9
$51,000 and under $52,000	–	–	–	1.0	–	–	–	–	–
$52,000 and under $53,000	–	–	–	.6	–	–	–	–	–
$53,000 and under $54,000	–	–	–	.7	–	–	–	–	–
$54,000 and under $55,000	–	–	–	1.2	–	–	–	–	–
$55,000 and over	–	–	–	2.4	–	–	–	–	–

See footnotes at end of table.

Table 4. Employment distribution by salary: Professional and administrative occupations—Continued

(Percent distribution of employees in selected professional and administrative occupations by annual salary, United States, except Alaska and Hawaii,[1] March 1985)

Annual salary	Systems analysts					
	I	II	III	IV	V	VI
Number of employees	20,649	42,666	34,202	12,785	2,688	179
Average annual salary	$28,197	$33,465	$39,663	$46,729	$56,461	$68,809
Total	100.0	100.0	100.0	100.0	100.0	100.0
$18,000 and under $19,500	[2] 1.1	-	-	-	-	-
$19,500 and under $21,000	2.2	-	-	-	-	-
$21,000 and under $22,500	3.6	-	-	-	-	-
$22,500 and under $24,000	7.1	[2] 1.1	-	-	-	-
$24,000 and under $25,500	12.2	1.9	-	-	-	-
$25,500 and under $27,000	16.1	3.7	-	-	-	-
$27,000 and under $28,500	16.9	6.4	[2] 1.1	-	-	-
$28,500 and under $30,000	13.5	9.5	1.4	-	-	-
$30,000 and under $31,500	9.7	11.5	2.2	-	-	-
$31,500 and under $33,000	6.9	14.7	4.1	-	-	-
$33,000 and under $34,500	4.2	12.6	6.5	[2] 1.6	-	-
$34,500 and under $36,000	2.0	11.4	9.2	1.3	-	-
$36,000 and under $37,500	1.2	10.8	10.9	1.9	-	-
$37,500 and under $39,000	[2] 3.4	6.1	12.1	3.4	[2] 2.4	-
$39,000 and under $40,500	-	3.9	11.6	5.5	1.0	-
$40,500 and under $42,000	-	2.4	11.4	11.0	1.1	-
$42,000 and under $43,500	-	1.2	8.9	7.6	1.1	-
$43,500 and under $45,000	-	[2] 2.7	6.1	12.1	1.0	-
$45,000 and under $46,500	-	-	4.9	9.0	2.5	-
$46,500 and under $48,000	-	-	3.4	8.8	4.7	-
$48,000 and under $49,500	-	-	2.0	7.8	5.9	-
$49,500 and under $51,000	-	-	1.8	6.5	7.3	-
$51,000 and under $52,500	-	-	[2] 2.5	5.4	8.1	-
$52,500 and under $54,000	-	-	-	4.4	5.9	-
$54,000 and under $55,500	-	-	-	3.8	9.0	-
$55,500 and under $57,000	-	-	-	2.8	8.0	[2] 2.4
$57,000 and under $58,500	-	-	-	2.6	5.5	1.1
$58,500 and under $60,000	-	-	-	1.1	5.9	3.9
$60,000 and under $61,500	-	-	-	[2] 3.4	3.3	5.0
$61,500 and under $63,000	-	-	-	-	5.1	10.1
$63,000 and under $64,500	-	-	-	-	3.3	6.1
$64,500 and under $66,000	-	-	-	-	4.6	10.1
$66,000 and under $67,500	-	-	-	-	3.5	7.8
$67,500 and under $69,000	-	-	-	-	2.5	7.3
$69,000 and under $70,500	-	-	-	-	2.9	6.1
$70,500 and under $72,000	-	-	-	-	1.2	4.5
$72,000 and under $73,500	-	-	-	-	[2] 3.8	5.6
$73,500 and under $75,000	-	-	-	-	-	10.1
$75,000 and under $76,500	-	-	-	-	-	10.1
$76,500 and under $78,000	-	-	-	-	-	3.4
$78,000 and under $79,500	-	-	-	-	-	1.7
$79,500 and under $81,000	-	-	-	-	-	-
$81,000 and under $82,500	-	-	-	-	-	-
$82,500 and under $84,000	-	-	-	-	-	-
$84,000 and under $85,500	-	-	-	-	-	2.8
$85,500 and over	-	-	-	-	-	1.9

See footnotes at end of table.

Table 4. Employment distribution by salary: Professional and administrative occupations—Continued

(Percent distribution of employees in selected professional and administrative occupations by annual salary, United States, except Alaska and Hawaii,[1] March 1985)

Annual salary	Chemists						
	I	II	III	IV	V	VI	VII
Number of employees	3,096	5,768	9,609	10,101	8,843	4,174	1,093
Average annual salary	$22,631	$26,722	$32,461	$39,418	$47,706	$58,210	$68,710
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under $15,000	1.4	–	–	–	–	–	–
$15,000 and under $16,500	1.4	–	–	–	–	–	–
$16,500 and under $18,000	3.2	[2] .4	–	–	–	–	–
$18,000 and under $19,500	11.7	1.3	–	–	–	–	–
$19,500 and under $21,000	14.5	5.9	–	–	–	–	–
$21,000 and under $22,500	21.1	8.7	[2] .8	–	–	–	–
$22,500 and under $24,000	12.8	10.9	2.7	–	–	–	–
$24,000 and under $25,500	17.6	11.7	3.5	–	–	–	–
$25,500 and under $27,000	6.3	18.3	6.1	–	–	–	–
$27,000 and under $28,500	3.2	13.1	9.6	[2] .9	–	–	–
$28,500 and under $30,000	4.4	10.1	12.0	1.3	–	–	–
$30,000 and under $31,500	1.4	5.1	12.0	3.1	–	–	–
$31,500 and under $33,000	[2] 1.0	8.3	11.4	4.7	[2] .8	–	–
$33,000 and under $34,500	–	2.8	8.4	7.6	1.2	–	–
$34,500 and under $36,000	–	1.6	7.2	9.3	.8	–	–
$36,000 and under $37,500	–	1.1	8.9	11.0	1.5	[2] 1.4	–
$37,500 and under $39,000	–	[2] .7	6.7	12.9	3.1	1.7	–
$39,000 and under $40,500	–	–	5.1	10.1	5.2	.5	–
$40,500 and under $42,000	–	–	2.4	11.5	8.2	1.0	–
$42,000 and under $43,500	–	–	1.9	9.1	5.6	.7	.3
$43,500 and under $45,000	–	–	[2] 1.4	4.0	8.7	1.3	1.9
$45,000 and under $46,500	–	–	–	4.3	7.9	2.2	–
$46,500 and under $48,000	–	–	–	3.5	9.4	2.6	1.6
$48,000 and under $49,500	–	–	–	2.4	11.2	5.4	.2
$49,500 and under $51,000	–	–	–	1.7	7.4	4.5	.2
$51,000 and under $52,500	–	–	–	1.1	7.3	4.9	2.0
$52,500 and under $54,000	–	–	–	[2] 1.5	5.0	7.1	3.2
$54,000 and under $55,500	–	–	–	–	4.5	4.9	3.2
$55,500 and under $57,000	–	–	–	–	3.2	7.7	2.0
$57,000 and under $58,500	–	–	–	–	3.3	5.8	1.1
$58,500 and under $60,000	–	–	–	–	2.0	5.2	8.4
$60,000 and under $61,500	–	–	–	–	1.7	8.6	3.2
$61,500 and under $63,000	–	–	–	–	[2] 2.0	4.8	2.8
$63,000 and under $64,500	–	–	–	–	–	7.2	5.7
$64,500 and under $66,000	–	–	–	–	–	2.9	6.8
$66,000 and under $67,500	–	–	–	–	–	5.0	5.7
$67,500 and under $69,000	–	–	–	–	–	2.7	11.4
$69,000 and under $70,500	–	–	–	–	–	1.7	3.1
$70,500 and under $72,000	–	–	–	–	–	3.3	2.1
$72,000 and under $73,500	–	–	–	–	–	1.4	2.8
$73,500 and under $75,000	–	–	–	–	–	1.8	5.4
$75,000 and under $76,500	–	–	–	–	–	[2] 3.9	4.1
$76,500 and under $78,000	–	–	–	–	–	–	1.8
$78,000 and under $79,500	–	–	–	–	–	–	2.5
$79,500 and under $81,000	–	–	–	–	–	–	3.5
$81,000 and under $82,500	–	–	–	–	–	–	2.1
$82,500 and under $84,000	–	–	–	–	–	–	2.0
$84,000 and under $85,500	–	–	–	–	–	–	.5
$85,500 and under $87,000	–	–	–	–	–	–	1.7
$87,000 and under $88,500	–	–	–	–	–	–	2.2
$88,500 and under $90,000	–	–	–	–	–	–	1.6
$90,000 and under $91,500	–	–	–	–	–	–	1.2
$91,500 and under $93,000	–	–	–	–	–	–	.3
$93,000 and under $94,500	–	–	–	–	–	–	1.8
$94,500 and over	–	–	–	–	–	–	1.6

See footnotes at end of table.

Table 4. Employment distribution by salary: Professional and administrative occupations—Continued

(Percent distribution of employees in selected professional and administrative occupations by annual salary, United States, except Alaska and Hawaii,[1] March 1985)

Annual salary	Engineers							
	I	II	III	IV	V	VI	VII	VIII
Number of employees	31,121	59,275	135,494	148,785	106,966	54,701	13,958	2,490
Average annual salary	$27,405	$30,275	$34,348	$40,991	$48,366	$56,136	$65,641	$76,205
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
$16,500 and under $18,000	.1	-	-	-	-	-	-	-
$18,000 and under $19,500	1.0	-	-	-	-	-	-	-
$19,500 and under $21,000	.9	-	-	-	-	-	-	-
$21,000 and under $22,500	2.5	[2] .9	-	-	-	-	-	-
$22,500 and under $24,000	5.2	1.5	[2] .6	-	-	-	-	-
$24,000 and under $25,500	11.1	3.2	1.4	-	-	-	-	-
$25,500 and under $27,000	20.0	7.6	2.3	-	-	-	-	-
$27,000 and under $28,500	27.6	15.1	5.4	-	-	-	-	-
$28,500 and under $30,000	17.5	19.6	7.1	[2] 1.3	-	-	-	-
$30,000 and under $31,500	8.4	18.9	10.3	1.7	-	-	-	-
$31,500 and under $33,000	3.5	15.3	12.6	3.1	-	-	-	-
$33,000 and under $34,500	1.2	8.6	13.2	4.8	[2] .7	-	-	-
$34,500 and under $36,000	[2] 1.0	4.9	13.1	6.6	1.1	-	-	-
$36,000 and under $37,500	-	2.6	10.9	8.4	1.6	-	-	-
$37,500 and under $39,000	-	1.0	8.3	10.1	3.0	-	-	-
$39,000 and under $40,500	-	[2] .7	5.9	11.8	4.0	-	-	-
$40,500 and under $42,000	-	-	3.7	11.1	5.1	[2] 1.5	-	-
$42,000 and under $43,500	-	-	2.2	10.6	7.4	1.5	-	-
$43,500 and under $45,000	-	-	1.4	9.2	8.3	2.9	-	-
$45,000 and under $46,500	-	-	[2] 1.6	7.0	9.6	3.7	-	-
$46,500 and under $48,000	-	-	-	5.1	9.5	4.5	-	-
$48,000 and under $49,500	-	-	-	3.2	9.3	6.0	-	-
$49,500 and under $51,000	-	-	-	2.1	8.4	7.4	[2] 2.3	-
$51,000 and under $52,500	-	-	-	1.4	7.0	7.5	2.9	-
$52,500 and under $54,000	-	-	-	[2] 2.3	6.1	7.8	2.9	-
$54,000 and under $55,500	-	-	-	-	5.2	7.6	3.6	-
$55,500 and under $57,000	-	-	-	-	4.3	6.9	4.6	[2] .5
$57,000 and under $58,500	-	-	-	-	2.9	6.7	5.1	1.0
$58,500 and under $60,000	-	-	-	-	2.0	6.6	7.2	1.3
$60,000 and under $61,500	-	-	-	-	1.7	5.6	7.1	4.5
$61,500 and under $63,000	-	-	-	-	[2] 2.7	4.9	6.7	1.6
$63,000 and under $64,500	-	-	-	-	-	4.4	6.9	3.7
$64,500 and under $66,000	-	-	-	-	-	3.7	7.4	3.3
$66,000 and under $67,500	-	-	-	-	-	2.6	5.8	4.0
$67,500 and under $69,000	-	-	-	-	-	2.1	5.9	4.9
$69,000 and under $70,500	-	-	-	-	-	1.9	5.0	7.9
$70,500 and under $72,000	-	-	-	-	-	1.1	5.2	6.5
$72,000 and under $73,500	-	-	-	-	-	[2] 3.0	5.1	6.6
$73,500 and under $75,000	-	-	-	-	-	-	3.0	7.5
$75,000 and under $76,500	-	-	-	-	-	-	2.3	5.9
$76,500 and under $78,000	-	-	-	-	-	-	2.1	6.3
$78,000 and under $79,500	-	-	-	-	-	-	1.9	4.1
$79,500 and under $81,000	-	-	-	-	-	-	1.0	4.3
$81,000 and under $82,500	-	-	-	-	-	-	1.2	3.9
$82,500 and under $84,000	-	-	-	-	-	-	1.0	2.8
$84,000 and under $85,500	-	-	-	-	-	-	[2] 4.0	1.4
$85,500 and under $87,000	-	-	-	-	-	-	-	1.2
$87,000 and under $88,500	-	-	-	-	-	-	-	3.0
$88,500 and under $90,000	-	-	-	-	-	-	-	1.4
$90,000 and under $91,500	-	-	-	-	-	-	-	1.2
$91,500 and under $93,000	-	-	-	-	-	-	-	2.3
$93,000 and under $94,500	-	-	-	-	-	-	-	.6
$94,500 and under $96,000	-	-	-	-	-	-	-	1.4
$96,000 and under $97,500	-	-	-	-	-	-	-	.4
$97,500 and under $99,000	-	-	-	-	-	-	-	.9
$99,000 and under $100,500	-	-	-	-	-	-	-	.4
$100,500 and under $102,000	-	-	-	-	-	-	-	1.4
$102,000 and under $103,500	-	-	-	-	-	-	-	.7
$103,500 and over	-	-	-	-	-	-	-	3.0

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[1] For the scope of the study see table A-1 in appendix A.

[2] To avoid showing small proportions of employees scattered at or near the extremes of the distributions for some occupations, the percentages of employees in these intervals have been accumulated and are shown in the interval above or below the extreme interval containing at least 1 percent.

NOTE: Because of rounding, sums of individual items may not equal 100.

Table 5. Employment distribution by salary: Technical support occupations

(Percent distribution of employees in selected technical support occupations by annual salary, United States, except Alaska and Hawaii,[1] March 1985)

Annual salary	Engineering technicians					Drafters				
	I	II	III	IV	V	I	II	III	IV	V
Number of employees	5,239	18,697	33,464	37,435	19,717	2,135	8,190	19,336	20,949	15,763
Average annual salary	$16,876	$19,339	$23,179	$27,259	$31,386	$13,208	$16,468	$20,006	$23,950	$29,876
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
$8,000 and under $9,000	-	-	-	-	-	.4	-	-	-	-
$9,000 and under $10,000	-	-	-	-	-	2.1	[2] .2	-	-	-
$10,000 and under $11,000	.1	-	-	-	-	8.6	1.4	-	-	-
$11,000 and under $12,000	1.3	-	-	-	-	23.9	1.6	-	-	-
$12,000 and under $13,000	3.5	[2] .4	-	-	-	16.7	6.5	-	-	-
$13,000 and under $14,000	7.1	1.1	-	-	-	20.5	8.2	[2] 1.3	-	-
$14,000 and under $15,000	12.9	3.3	-	-	-	11.8	13.7	3.7	-	-
$15,000 and under $16,000	14.6	6.0	[2] .8	-	-	5.9	14.4	5.6	[2] .8	-
$16,000 and under $17,000	16.8	13.6	1.4	-	-	4.9	15.8	8.6	1.3	-
$17,000 and under $18,000	14.2	12.0	3.5	-	-	1.6	11.8	9.4	2.1	-
$18,000 and under $19,000	9.1	13.2	6.2	[2] .6	-	.6	6.9	13.2	5.2	-
$19,000 and under $20,000	7.8	11.3	7.5	1.1	-	1.1	8.2	11.0	5.8	[2] .7
$20,000 and under $21,000	7.8	11.1	9.8	1.6	-	.8	5.8	11.1	7.3	1.3
$21,000 and under $22,000	1.5	9.0	11.6	3.3	-	1.1	1.3	13.4	9.0	2.8
$22,000 and under $23,000	.7	7.4	11.3	5.4	[2] 1.0	-	2.3	8.1	9.8	4.1
$23,000 and under $24,000	1.0	5.1	9.7	8.3	1.0	-	1.1	3.8	11.4	3.8
$24,000 and under $25,000	[2] 1.7	3.1	8.9	8.2	1.8	-	[2] .7	2.8	11.7	4.5
$25,000 and under $26,000	-	1.5	7.5	9.3	3.0	-	-	2.4	9.0	5.0
$26,000 and under $27,000	-	1.0	7.4	10.6	5.1	-	-	1.5	6.0	7.2
$27,000 and under $28,000	-	[2] 1.0	5.6	13.3	7.1	-	-	1.7	5.4	7.8
$28,000 and under $29,000	-	-	3.3	10.4	8.7	-	-	[2] 2.6	4.5	7.6
$29,000 and under $30,000	-	-	2.0	7.4	10.9	-	-	-	5.7	8.3
$30,000 and under $31,000	-	-	1.3	6.3	9.6	-	-	-	1.9	6.4
$31,000 and under $32,000	-	-	[2] 2.3	4.7	12.1	-	-	-	1.4	8.6
$32,000 and under $33,000	-	-	-	2.7	9.2	-	-	-	[2] 1.8	7.9
$33,000 and under $34,000	-	-	-	2.9	8.2	-	-	-	-	4.4
$34,000 and under $35,000	-	-	-	1.5	6.0	-	-	-	-	3.9
$35,000 and under $36,000	-	-	-	[2] 2.7	5.0	-	-	-	-	3.8
$36,000 and under $37,000	-	-	-	-	3.2	-	-	-	-	2.4
$37,000 and under $38,000	-	-	-	-	2.8	-	-	-	-	2.9
$38,000 and under $39,000	-	-	-	-	1.4	-	-	-	-	1.9
$39,000 and under $40,000	-	-	-	-	1.3	-	-	-	-	1.7
$40,000 and under $41,000	-	-	-	-	[2] 2.6	-	-	-	-	2.7
$41,000 and over	-	-	-	-	-	-	-	-	-	.4

See footnotes at end of table.

Table 5. Employment distribution by salary: Technical support occupations—Continued

(Percent distribution of employees in selected technical support occupations by annual salary, United States, except Alaska and Hawaii,[1] March 1985)

Annual salary	Computer operators					Photographers			
	I	II	III	IV	V	I	II	III	IV
Number of employees	9,305	32,988	23,039	8,573	1,416	219	727	806	365
Average annual salary	$13,670	$16,973	$20,664	$24,016	$28,440	$17,571	$22,019	$26,489	$30,210
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
$8,000 and under $9,000	1.3	-	-	-	-	-	-	-	-
$9,000 and under $10,000	3.7	.4	-	-	-	-	-	-	-
$10,000 and under $11,000	9.9	1.8	-	-	-	.5	-	-	-
$11,000 and under $12,000	13.7	2.5	-	-	-	4.1	-	-	-
$12,000 and under $13,000	16.1	5.8	-	-	-	4.6	-	-	-
$13,000 and under $14,000	13.8	7.0	[2] 1.6	-	-	-	2.3	-	-
$14,000 and under $15,000	15.8	12.0	2.6	-	-	6.8	6.1	-	-
$15,000 and under $16,000	7.9	14.0	5.1	-	-	15.1	5.1	-	-
$16,000 and under $17,000	6.6	13.0	7.6	[2] 1.6	-	6.4	1.0	-	-
$17,000 and under $18,000	5.7	10.4	8.8	2.0	-	18.3	2.1	[2] .7	-
$18,000 and under $19.000	2.6	8.8	11.5	4.0	-	21.9	7.4	2.9	-
$19,000 and under $20,000	1.1	6.1	10.7	6.5	-	3.7	9.6	3.3	-
$20,000 and under $21,000	1.0	4.4	10.0	6.6	[2] .8	10.0	4.4	3.2	[2] 1.4
$21,000 and under $22,000	[2] .9	5.7	12.1	11.9	1.9	4.6	5.2	5.7	1.4
$22,000 and under $23,000	-	3.5	6.0	11.1	5.2	.5	10.5	6.3	6.0
$23,000 and under $24,000	-	1.7	6.2	9.2	4.5	.9	9.9	5.8	6.8
$24,000 and under $25,000	-	1.1	4.8	9.6	8.7	.5	14.9	6.0	3.0
$25,000 and under $26,000	-	[2] 2.0	3.7	13.3	5.7	-	5.4	8.3	3.0
$26,000 and under $27,000	-	-	2.4	6.6	6.9	2.3	6.9	12.9	4.9
$27,000 and under $28,000	-	-	1.5	4.4	6.1	-	3.3	11.7	4.7
$28,000 and under $29,000	-	-	1.0	3.3	10.2	-	3.4	7.3	7.4
$29,000 and under $30,000	-	-	1.5	3.0	11.6	-	.4	6.8	9.6
$30,000 and under $31,000	-	-	[2] 2.8	1.0	19.7	-	.3	7.1	5.5
$31,000 and under $32,000	-	-	-	1.2	5.9	-	.1	4.5	8.5
$32,000 and under $33,000	-	-	-	1.0	4.7	-	1.0	1.0	8.5
$33,000 and under $34,000	-	-	-	1.2	1.8	-	.8	1.0	9.9
$34,000 and under $35,000	-	-	-	[2] 2.2	1.5	-	-	.4	4.9
$35,000 and under $36,000	-	-	-	-	2.4	-	-	.6	2.2
$36,000 and under $37,000	-	-	-	-	2.3	-	-	3.5	4.7
$37,000 and under $38,000	-	-	-	-	[2] .2	-	-	[2] 1.0	3.0
$38,000 and under $39,000	-	-	-	-	-	-	-	-	1.4
$39,000 and over	-	-	-	-	-	-	-	-	3.3

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[1] For the scope of the study, see table A-1 in appendix A.

[2] To avoid showing small proportions of employees scattered at or near the extremes of the distributions for some occupations, the percentages of employees in these intervals have been accumulated and are shown in the interval above or below the extreme interval containing at least 1 percent.

NOTE: Because of rounding, sums of individual items may not equal 100.

Table 6. Employment distribution by salary: Clerical occupations

(Percent distribution of employees in selected clerical occupations by annual salary, United States, except Alaska and Hawaii,[1] March 1985)

Annual salary	Accounting clerks				File clerks			Key entry operators	
	I	II	III	IV	I	II	III	I	II
Number of employees	27,038	76,029	50,107	17,868	16,776	8,781	1,962	45,527	29,908
Average annual salary	$12,380	$14,726	$17,327	$21,105	$10,101	$11,836	$14,707	$13,200	$16,600
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under $7,000	-	-	-	-	1.1	-	-	-	-
$7,000 and under $7,500	[2] .5	-	-	-	2.8	-	-	-	-
$7,500 and under $8,000	2.1	-	-	-	9.2	-	-	-	-
$8,000 and under $8,500	2.1	-	-	-	9.9	[2] .6	-	[2] 2.0	-
$8,500 and under $9,000	2.8	[2] .7	-	-	10.5	3.3	-	1.4	-
$9,000 and under $9,500	9.6	1.1	-	-	12.8	5.0	-	1.9	-
$9,500 and under $10,000	5.6	1.4	-	-	10.8	10.1	-	4.5	-
$10,000 and under $10,500	8.0	2.7	-	-	9.2	13.2	[2] 1.5	6.5	-
$10,500 and under $11,000	7.9	3.2	-	-	7.1	15.7	4.8	9.0	[2] 2.5
$11,000 and under $11,500	7.4	4.6	-	-	5.9	8.7	3.3	7.7	2.5
$11,500 and under $12,000	8.0	5.5	[2] 4.1	-	5.9	9.7	5.5	6.3	2.2
$12,000 and under $12,500	5.7	6.5	2.8	-	2.9	7.2	9.0	8.1	2.6
$12,500 and under $13,000	6.0	6.4	3.2	-	2.4	6.1	12.4	7.8	5.0
$13,000 and under $13,500	4.3	7.0	3.5	-	3.0	3.8	4.7	8.7	4.6
$13,500 and under $14,000	3.2	7.8	3.9	[2] 1.6	.9	3.5	9.5	7.0	4.7
$14,000 and under $14,500	3.8	7.9	4.8	2.1	1.0	1.7	8.2	3.8	6.9
$14,500 and under $15,000	3.6	6.3	5.0	2.7	.6	2.3	6.8	4.3	6.0
$15,000 and under $15,500	3.0	6.2	4.9	2.3	1.3	1.3	4.6	3.5	8.0
$15,500 and under $16,000	3.5	4.8	6.9	2.4	[2] 2.4	1.3	4.1	2.3	6.4
$16,000 and under $16,500	2.1	4.7	5.4	1.4	-	.6	3.4	2.4	4.9
$16,500 and under $17,000	4.7	3.2	7.2	2.2	-	.6	4.4	1.8	6.2
$17,000 and under $17,500	2.3	2.7	6.5	4.7	-	1.2	1.6	1.8	3.9
$17,500 and under $18,000	.3	3.4	5.2	4.5	-	[2] 4.3	2.9	1.3	4.4
$18,000 and under $18,500	.2	1.6	6.9	5.6	-	-	3.5	1.3	2.9
$18,500 and under $19,000	.2	1.1	3.9	5.9	-	-	1.0	.5	3.6
$19,000 and under $19,500	.2	1.2	3.1	5.4	-	-	.8	.6	3.3
$19,500 and under $20,000	.1	1.1	3.0	4.2	-	-	1.5	.5	4.2
$20,000 and under $20,500	.2	1.5	2.1	4.6	-	-	.7	1.1	2.0
$20,500 and under $21,000	.2	1.4	1.7	4.3	-	-	.5	[2] 3.9	1.6
$21,000 and under $21,500	1.7	.7	1.5	4.9	-	-	.4	-	2.3
$21,500 and under $22,000	[2] .5	1.3	1.8	5.4	-	-	1.1	-	1.4
$22,000 and under $22,500	-	1.1	2.1	5.7	-	-	.3	-	.5
$22,500 and under $23,000	-	[2] 2.5	1.8	2.6	-	-	.6	-	1.3
$23,000 and under $23,500	-	-	1.2	1.8	-	-	.2	-	[2] 6.0
$23,500 and under $24,000	-	-	2.2	2.9	-	-	1.3	-	-
$24,000 and under $24,500	-	-	.7	1.7	-	-	[2] 1.7	-	-
$24,500 and under $25,000	-	-	.7	2.9	-	-	-	-	-
$25,000 and under $25,500	-	-	.6	2.5	-	-	-	-	-
$25,500 and under $26,000	-	-	.3	1.9	-	-	-	-	-
$26,000 and under $26,500	-	-	1.1	.9	-	-	-	-	-
$26,500 and under $27,000	-	-	[2] 2.0	1.6	-	-	-	-	-
$27,000 and under $27,500	-	-	-	2.3	-	-	-	-	-
$27,500 and under $28,000	-	-	-	1.5	-	-	-	-	-
$28,000 and under $28,500	-	-	-	.9	-	-	-	-	-
$28,500 and under $29,000	-	-	-	.7	-	-	-	-	-
$29,000 and under $29,500	-	-	-	1.3	-	-	-	-	-
$29,500 and under $30,000	-	-	-	.8	-	-	-	-	-
$30,000 and over	-	-	-	3.8	-	-	-	-	-

See footnotes at end of table.

Table 6. Employment distribution by salary: Clerical occupations—Continued

(Percent distribution of employees in selected clerical occupations by annual salary, United States, except Alaska and Hawaii,[1] March 1985)

Annual salary	Messengers	Personnel clerks/assistants				Purchasing assistants		
		I	II	III	IV	I	II	III
Number of employees	9,356	1,787	3,120	2,545	1,353	3,804	3,798	1,062
Average annual salary	$11,685	$14,023	$16,375	$18,870	$22,355	$16,363	$21,135	$28,150
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
$7,000 and under $7,500	[2] .6	-	-	-	-	-	-	-
$7,500 and under $8,000	1.4	-	-	-	-	-	-	-
$8,000 and under $8,500	7.0	-	-	-	-	-	-	-
$8,500 and under $9,000	6.1	-	-	-	-	-	-	-
$9,000 and under $9,500	7.1	[2] .7	2.1	-	-	-	-	-
$9,500 and under $10,000	8.7	1.3	.5	-	-	-	-	-
$10,000 and under $10,500	8.2	2.2	.3	-	-	-	-	-
$10,500 and under $11,000	10.3	4.0	.2	-	-	[2] 2.3	-	-
$11,000 and under $11,500	8.1	7.5	1.1	-	-	1.6	-	-
$11,500 and under $12,000	8.4	6.4	2.2	[2] .7	-	1.7	-	-
$12,000 and under $12,500	6.2	13.0	1.9	1.6	-	2.1	-	-
$12,500 and under $13,000	6.0	4.2	3.3	.4	-	3.7	-	-
$13,000 and under $13,500	3.7	8.2	4.7	.6	-	5.8	-	-
$13,500 and under $14,000	3.5	11.6	5.7	1.3	-	6.0	-	-
$14,000 and under $14,500	1.3	8.2	6.3	3.1	-	7.5	[2] 2.1	-
$14,500 and under $15,000	1.8	5.7	8.2	1.5	-	8.9	1.2	-
$15,000 and under $15,500	1.7	5.8	7.8	5.6	[2] .3	8.0	3.1	-
$15,500 and under $16,000	1.5	3.0	10.1	5.9	3.4	6.9	5.6	-
$16,000 and under $16,500	.5	2.1	6.5	5.0	.3	7.8	2.8	-
$16,500 and under $17,000	1.1	4.9	5.2	2.4	.9	5.3	2.3	-
$17,000 and under $17,500	.5	.8	3.9	7.6	3.2	6.7	2.6	[2] 1.4
$17,500 and under $18,000	1.0	1.0	6.1	4.9	2.8	3.1	5.1	1.0
$18,000 and under $18,500	1.2	2.2	2.1	8.5	5.1	4.7	5.8	.8
$18,500 and under $19,000	1.1	1.7	2.4	6.4	1.2	2.5	3.4	1.2
$19,000 and under $19,500	[2] 3.0	1.1	2.5	5.6	1.8	2.3	5.0	1.1
$19,500 and under $20,000	-	-	2.5	6.5	5.2	1.1	3.5	.4
$20,000 and under $20,500	-	2.2	3.1	4.7	9.6	1.0	4.0	1.0
$20,500 and under $21,000	-	-	1.0	4.5	4.0	1.4	4.6	.7
$21,000 and under $21,500	-	.6	2.4	3.5	5.2	1.3	4.6	1.2
$21,500 and under $22,000	-	.1	.5	4.0	4.9	.8	6.9	4.1
$22,000 and under $22,500	-	.3	2.3	3.2	3.6	1.2	2.9	1.4
$22,500 and under $23,000	-	.1	.6	2.0	7.1	[2] 6.5	3.2	2.2
$23,000 and under $23,500	-	1.3	1.1	2.6	4.1	-	5.0	1.9
$23,500 and under $24,000	-	[2] .1	.1	1.5	9.8	-	2.0	2.3
$24,000 and under $24,500	-	-	.3	.8	1.1	-	3.1	1.3
$24,500 and under $25,000	-	-	1.1	.4	7.3	-	4.3	2.6
$25,000 and under $25,500	-	-	[2] 2.1	1.4	2.5	-	2.2	5.8
$25,500 and under $26,000	-	-	-	.4	3.5	-	1.6	3.2
$26,000 and under $26,500	-	-	-	1.0	5.0	-	1.5	5.9
$26,500 and under $27,000	-	-	-	.3	.7	-	1.7	5.4
$27,000 and under $27,500	-	-	-	.2	.5	-	2.4	3.2
$27,500 and under $28,000	-	-	-	1.3	1.0	-	1.3	4.4
$28,000 and under $28,500	-	-	-	[2] .7	.6	-	1.3	4.6
$28,500 and under $29,000	-	-	-	-	.8	-	.9	6.0
$29,000 and under $29,500	-	-	-	-	.7	-	.5	3.2
$29,500 and under $30,000	-	-	-	-	.3	-	1.4	1.4
$30,000 and over	-	-	-	-	3.6	-	2.3	[3] 32.0

See footnotes at end of table.

Table 6. Employment distribution by salary: Clerical occupations—Continued

(Percent distribution of employees in selected clerical occupations by annual salary, United States, except Alaska and Hawaii,[1] March 1965)

Annual salary	Secretaries					Stenographers		Typists	
	I	II	III	IV	V	I	II	I	II
Number of employees	53,266	61,039	111,029	47,854	17,227	9,093	5,966	19,976	13,119
Average annual salary	$15,869	$17,721	$19,988	$22,520	$26,210	$18,391	$20,914	$12,621	$15,847
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
$7,000 and under $8,000	-	-	-	-	-	-	-	.9	-
$8,000 and under $9,000	.1	-	-	-	-	-	-	7.4	[2] .4
$9,000 and under $10,000	1.3	-	-	-	-	[2] 1.1	-	11.3	2.5
$10,000 and under $11,000	2.3	[2] .7	-	-	-	1.7	-	18.8	3.1
$11,000 and under $12,000	6.0	1.3	[2] .6	-	-	3.8	[2] .7	15.9	7.3
$12,000 and under $13,000	10.8	3.4	1.0	-	-	5.6	1.5	13.0	10.9
$13,000 and under $14,000	13.0	5.5	1.9	[2] 1.0	-	6.6	2.1	7.2	12.9
$14,000 and under $15,000	13.4	10.2	4.3	1.4	-	7.3	2.6	7.4	11.0
$15,000 and under $16,000	12.1	11.8	6.4	1.6	[2] .2	6.7	3.2	4.3	8.1
$16,000 and under $17,000	11.8	11.8	8.3	3.7	1.1	5.8	5.2	4.0	10.0
$17,000 and under $18,000	8.0	12.7	9.8	6.3	1.3	8.1	5.6	2.5	10.2
$18,000 and under $19,000	6.0	12.6	11.4	7.0	3.7	6.8	4.7	1.6	5.0
$19,000 and under $20,000	3.9	7.9	11.3	7.9	3.2	7.1	10.3	.5	4.1
$20,000 and under $21,000	2.7	7.4	10.5	8.2	4.3	10.0	15.6	.6	3.6
$21,000 and under $22,000	1.7	4.4	7.7	9.2	5.3	6.1	19.3	.6	4.4
$22,000 and under $23,000	1.3	3.3	6.7	8.8	6.8	8.0	6.5	.8	1.1
$23,000 and under $24,000	1.5	1.9	5.3	10.5	7.8	1.4	3.6	.4	.9
$24,000 and under $25,000	[2] 3.9	2.7	4.0	8.9	9.5	7.2	3.4	.3	2.7
$25,000 and under $26,000	-	1.1	2.5	6.3	8.9	4.7	3.4	2.3	1.7
$26,000 and under $27,000	-	[2] 1.5	2.4	5.6	6.3	1.8	6.8	-	[2] .2
$27,000 and under $28,000	-	-	3.0	4.0	8.4	.1	2.6	-	-
$28,000 and under $29,000	-	-	[2] 2.8	2.8	7.3	-	.5	-	-
$29,000 and under $30,000	-	-	-	2.8	5.8	-	.9	-	-
$30,000 and under $31,000	-	-	-	1.1	4.5	-	1.0	-	-
$31,000 and under $32,000	-	-	-	1.1	6.1	-	.6	-	-
$32,000 and under $33,000	-	-	-	[2] 1.6	2.4	-	-	-	-
$33,000 and under $34,000	-	-	-	-	1.5	-	-	-	-
$34,000 and under $35,000	-	-	-	-	1.1	-	-	-	-
$35,000 and under $36,000	-	-	-	-	1.0	-	-	-	-
$36,000 and under $37,000	-	-	-	-	1.0	-	-	-	-
$37,000 and under $38,000	-	-	-	-	1.3	-	-	-	-
$38,000 and under $39,000	-	-	-	-	[2] 1.5	-	-	-	-

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[1] For the scope of the study, see table A-1 in appendix A.

[2] To avoid showing small proportions of employees scattered at or near the extremes of the distributions for some occupations, the percentages of employees in these intervals have been accumulated and are shown in the interval above or below the extreme interval containing at least 1 percent.

[3] Workers are distributed as follows: 2.6 percent at $30,000 and under $31,000, 2.5 percent at $31,000 and under $32,000, 3.9 percent at $32,000 and under $33,000, 6.6 percent at $33,000 and under $34,000, 3.1 percent at $34,000 and under $35,000, 3.0 percent at $35,000 and under $36,000, 4.2 percent at $36,000 and under $37,000, 3.8 percent at $37,000 and under $38,000, 1.9 percent at $38,000 and under $39,000, and .3 percent at $39,000 and under $40,000.

NOTE: Because of rounding, sums of individual items may not equal 100.

Table 7. Occupational employment distribution: By industry division

(Percent distribution of employees in selected professional, administrative, technical, and clerical occupations,[1] by industry division,[2] United States, except Alaska and Hawaii, March 1985)

Occupation	All industries	Mining	Construction	Manufacturing	Public utilities[3]	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services[4]
Professional and administrative									
Accountants	100	8	1	58	11	4	2	12	4
Auditors	100	3	(5)	37	13	6	4	34	2
Public accountants	100	–	–	–	–	–	–	–	100
Chief accountants	100	4	(5)	68	8	6	1	8	4
Attorneys	100	5	(5)	30	14	4	4	40	3
Buyers	100	2	2	83	5	2	1	3	3
Computer programmers	100	1	(5)	38	9	7	3	23	17
Systems analysts	100	3	(5)	37	14	5	3	26	12
Job analysts	100	1	(5)	46	11	2	4	29	6
Directors of personnel	100	2	1	69	5	3	1	13	5
Chemists	100	1	–	88	3	(5)	(5)	(5)	7
Engineers	100	1	5	75	7	1	(5)	(5)	10
Technical support									
Engineering technicians	100	1	(5)	81	6	1	(5)	(5)	11
Drafters	100	1	3	70	10	1	(5)	(5)	15
Computer operators	100	3	(5)	39	9	8	4	24	12
Photographers	100	2	(5)	66	6	3	4	2	18
Clerical									
Accounting clerks	100	2	1	41	12	10	13	17	4
File clerks	100	1	(5)	12	4	4	5	68	5
Key entry operators	100	1	1	35	7	9	8	31	8
Messengers	100	2	(5)	25	9	3	5	48	8
Personnel clerks/assistants	100	2	(5)	58	7	3	5	17	8
Purchasing assistants	100	1	1	84	7	1	1	4	3
Secretaries	100	2	1	51	8	6	3	23	6
Stenographers	100	(5)	(5)	43	47	1	1	5	3
Typists	100	(5)	3	37	9	4	4	35	8

[1] Each occupation includes the work levels shown in table 1.

[2] For the scope of the study, see table A-1 in appendix A.

[3] Transportation (except U.S. Postal Service), communications, electric, gas, and sanitary services.

[4] Limited to engineering, architectural, and surveying services; commercially operated research, development, and testing laboratories; credit reporting and collection agencies; computer and data processing services; management, consulting, and public relations services; noncommercial educational, scientific, and research organizations; and accounting, auditing, and bookkeeping services.

[5] Less than 0.5 percent.

NOTE: A dash indicates that no workers were found in the occupation in the industry. Because of rounding, sums of individual items may not equal 100.

Table 8. Relative salary levels: Occupation by industry division

(Relative salary levels for selected professional, administrative, technical, and clerical occupations,[1] by industry division,[2] United States, except Alaska and Hawaii, March 1985)

Occupation	All industries	Mining	Construction	Manufacturing	Public utilities[3]	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services[4]
Professional and administrative									
Accountants	100	107	102	100	106	98	94	92	95
Auditors	100	111	-	103	108	106	91	93	96
Public accountants	100	-	-	-	-	-	-	-	100
Chief accountants	100	-	-	98	103	-	-	101	100
Attorneys	100	118	101	103	104	105	97	94	94
Buyers	100	113	106	99	109	98	112	96	98
Computer programmers	100	110	105	103	106	104	92	95	96
Systems analysts	100	112	-	102	103	98	96	97	97
Job analysts	100	-	-	105	109	-	-	91	91
Directors of personnel	100	118	-	100	103	111	-	94	94
Chemists	100	118	-	100	-	-	-	-	90
Engineers	100	120	101	100	101	-	-	-	96
Technical support									
Engineering technicians	100	119	-	99	112	-	-	-	96
Drafters	100	106	97	99	109	-	-	-	100
Computer operators	100	102	-	103	116	99	97	92	95
Photographers	100	-	-	102	-	-	-	-	92
Clerical									
Accounting clerks	100	113	96	102	120	95	94	87	94
File clerks	100	122	-	115	143	106	103	94	104
Key entry operators	100	112	92	106	128	95	96	90	93
Messengers	100	107	-	112	133	112	90	88	98
Personnel clerks/assistants	100	113	-	101	109	95	90	90	101
Purchasing assistants	100	127	-	100	107	-	-	-	99
Secretaries	100	112	98	103	112	101	88	90	100
Stenographers	100	-	-	97	106	120	98	67	86
Typists	100	108	93	112	117	109	99	85	94

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[1] Each occupation includes the work levels shown in table 1. In computing relative salary levels for each occupation by industry division, the total employment in each work level in all industries surveyed was used as a constant employment weight to eliminate the effect of differences in the proportion of employment in various work levels within each occupation.

[2] For the scope of the study, see table A-1 in appendix A.

[3] Transportation (except U.S. Postal Service), communications, electric, gas, and sanitary services.

[4] Limited to engineering, architectural, and surveying services; commercially operated research, development, and testing laboratories; credit reporting and collection agencies; computer and data processing services; management, consulting, and public relations services; noncommercial educational, scientific, and research organizations; and accounting, auditing, and bookkeeping services.

NOTE: A dash indicates insufficient employment in 1 work level or more in the occupation-industry designation to warrant separate presentation of data.

Table 9. Average weekly hours: Occupation by industry division

(Average standard weekly hours[1] for employees in selected professional, administrative, technical, and clerical occupations,[2] by industry division,[3] United States, except Alaska and Hawaii, March 1985)

Occupation	All industries	Mining	Construction	Manufacturing	Public utilities[4]	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services[5]
Professional and administrative									
Accountants	39.5	40.0	40.0	39.5	39.5	39.5	39.5	38.5	39.5
Auditors	39.5	40.0	40.0	39.5	40.0	40.0	40.0	39.0	39.0
Public accountants	39.5	-	-	-	-	-	-	-	39.5
Chief accountants	39.5	40.0	40.0	39.5	40.0	40.0	40.0	39.0	39.0
Attorneys	38.5	40.0	40.0	39.0	39.5	39.0	39.0	38.0	38.5
Buyers	40.0	40.0	40.0	40.0	39.5	40.5	40.0	38.0	39.5
Computer programmers	39.5	40.0	40.0	39.5	39.5	40.0	40.0	38.0	40.0
Systems analysts	39.0	40.0	40.0	39.5	39.5	39.5	39.5	38.0	40.0
Job analysts	39.5	40.0	40.0	39.5	39.5	39.5	40.0	38.5	39.0
Directors of personnel	39.5	40.0	40.0	39.5	39.5	39.5	40.0	38.5	39.5
Chemists	39.5	40.0	-	39.5	40.0	(6)	(6)	38.5	40.0
Engineers	40.0	40.0	40.0	40.0	40.0	40.0	40.0	39.5	40.0
Technical support									
Engineering technicians	40.0	40.0	(6)	40.0	40.0	38.5	(6)	(6)	40.0
Drafters	40.0	40.0	40.0	40.0	39.0	39.5	37.5	39.5	40.0
Computer operators	39.5	40.0	40.0	39.5	39.0	39.5	39.5	38.5	40.0
Photographers	39.5	40.0	(6)	40.0	39.5	38.0	38.5	38.0	39.5
Clerical									
Accounting clerks	39.5	40.0	40.0	39.5	39.5	39.5	39.5	38.5	39.0
File clerks	38.5	40.0	39.5	39.5	39.5	39.5	40.0	38.0	39.0
Key entry operators	39.0	40.0	40.0	39.5	39.5	39.5	39.5	38.5	39.0
Messengers	38.5	40.0	(6)	39.0	39.0	39.5	39.5	37.5	38.5
Personnel clerks/assistants	39.5	40.0	40.0	40.0	39.5	39.5	39.5	38.5	39.0
Purchasing assistants	39.5	40.0	40.0	39.5	39.0	40.0	40.0	38.0	39.5
Secretaries	39.5	40.0	40.0	39.5	39.5	39.5	39.0	38.5	39.0
Stenographers	39.5	(6)	40.0	40.0	39.5	40.0	40.0	36.5	39.0
Typists	39.0	40.0	40.0	39.5	40.0	39.5	40.0	37.5	39.0

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[1] Based on the standard workweek for which employees receive their regular straight-time salary. If standard hours are not available, the standard hours applicable for a majority of the office work force in the establishments were used. The average for each job category was rounded to the nearest half-hour.

[2] Each occupation includes the work levels shown in table 1.

[3] For the scope of the study, see table A-1 in appendix A.

[4] Transportation (except U.S. Postal Service), communications, electric, gas, and sanitary services.

[5] Limited to engineering, architectural, and surveying services; commercially operated research, development, and testing laboratories; credit reporting and collection agencies; computer and data processing services; management, consulting, and public relations services; noncommercial educational, scientific, and research organizations; and accounting, auditing, and bookkeeping services.

[6] Insufficient number of establishments to warrant separate presentation of data.

NOTE: A dash indicates that no workers were found in the occupation in the industry.

Appendix A. Scope and Method of Survey

Scope

The survey relates to establishments[1] in the United States, except Alaska and Hawaii, employing a specified minimum number of workers and engaged in the following industries: Mining; construction; manufacturing; transportation, communications, electric, gas, and sanitary services (except the U.S. Postal Service and government agencies, such as the Tennessee Valley Authority); wholesale trade; retail trade; finance, insurance, and real estate; and selected services (table A-1).

Establishments which met the minimum size criteria during the reference period of the information used in compiling the survey universe were included even if they employed fewer than the specified minimum number of workers at the time of the survey. Establishments found to be outside of the industrial scope of the survey at the time of data collection were excluded.

Table A-1 shows the estimated number of establishments and employees within the scope of the survey (the universe) and the number within the sample actually studied for each major industry division. Separate estimates are presented for establishments employing 2,500 workers or more and for those located in Metropolitan Statistical Areas (MSA's) and Primary Metropolitan Statistical Areas (PMSA's).[2] Similar estimates of the number of full-time white-collar employees are also provided.

Sampling frame

The list of establishments (the sampling frame) from which the sample was selected was developed by updating the 1984 survey sampling frame using data from the most recently available (usually March 1983) unemployment insurance reports for the 48 contiguous States and the District of Columbia. During the update process, some establishments were added; some were removed; and for some, address, employment, type of industry, or other information was changed.

Survey design

The design for a survey of this nature includes methods of classifying individual establishments into homogeneous groups or strata, determining the size of the sample for each stratum, and selecting the sample of establishments for each stratum.[3]

Establishments within the scope of the 1985 survey were stratified by industry group and by total employment.

The sample size in a stratum was a function of the expected number of employees (based on previous surveys) in all professional, administrative, technical, and clerical occupations in the stratum. That is, the larger the expected number of employees in all surveyed occupations, the larger the sample in the stratum. Also, an upward adjustment was made to the sample size in those strata expected to have specified occupations which had relatively high sampling errors in previous surveys. (See "Reliability of estimates" section for a discussion of sampling errors.)

Data collection

Data for the survey were obtained primarily by personal visits of the Bureau's field representatives to a nationwide sample of establishments. Collection was scheduled from January through mid-May to reflect an average reference period of March 1985.[4]

Employees were classified by occupation and work level using job descriptions (appendix C) prepared jointly by the Bureau of Labor Statistics and the Office of Personnel Management. Descriptions are designed to reflect duties and responsibilities of employees in private industry and to be translatable to specific General Schedule grades applying to Federal employees (appendix D). Thus, definitions of some occupations and work levels were limited to specific elements which could be classified uniformly among establishments.

In comparing the actual duties and responsibilities of employees with those enumerated in job descriptions, the Bureau's field representatives, with the assistance of company officials, made extensive use of company position descriptions, organization charts, and other personnel records.

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[1] For this survey, an establishment is an economic unit which produces goods or services, a central administrative office, or an auxiliary unit providing support services to a company. In manufacturing industries, the establishment is usually at a single physical location. In nonmanufacturing industries, all locations of an individual company within a Metropolitan Statistical Area (MSA) or Primary Metropolitan Statistical Area (PMSA) or within a nonmetropolitan county are usually considered an establishment.

[2] Metropolitan data relate to all 327 MSA's and PMSA's within the 48 contiguous States as defined by the U.S. Office of Management and Budget through June 1983.

[3] In 1985, a random sample was selected systematically to maximize the probability of retaining establishments which were selected for the 1984 survey. This method was a modification of the method introduced by Nathan Keyfitz in 1951 in his paper titled "Sampling with Probabilities Proportional to Size: Adjusting for Changes in the Probabilities," *Journal of the American Statistical Association*, No. 46, pp.105-09.

[4] The March payroll period has been used since the 1972 survey. The 1970 and 1971 surveys had a June reference period.

Salaries reported for survey occupations were those paid to full-time employees for standard work schedules, i.e., the straight-time salary corresponding to the employee's normal work schedule excluding overtime hours. Cost-of-living allowances and incentive payments, however, were included. Excluded were performance bonuses and lump-sum payments of the type negotiated in the auto and aerospace industries,[5] as well as profit-sharing payments, attendence bonuses, Christmas or year-end bonuses, and other nonproduction bonuses.

Survey nonresponse

In the March 1985 survey, salary data were not available from about 13 percent of the sample establishments (representing 2,753,000 employees in the total universe covered by the survey). An additional 3 percent of the sample establishments (representing 497,200 employees) were either out of business or outside the scope of the survey.

If data were not provided by the sample member, the weights of responding sample establishments were increased to adjust for the missing data. No adjustment was made for establishments which were out of business or outside the scope of the survey.

Some sampled companies had a policy of not disclosing salary data for certain employees. No adjustments were made to salary estimates for the survey as a result of these missing data. In all but three of the professional, administrative, technical, and clerical work levels published, the proportion of employees for whom salary data were not available was less than 5 percent. These three are directors of personnel level II (6 percent), level III (12 percent), and level IV (10 percent).

Survey estimation methods

Data conversion. Salary data were collected from company records in the most readily available form, i.e., weekly, biweekly, semimonthly, monthly, or annually. Before initial tabulations, all salary data were converted to a monthly basis. The factors used to convert the salary data are as follows:

Payroll basis	*Conversion factor*
Weekly	4.3333
Biweekly	2.1665
Semimonthly	2.0000
Monthly	1.0000
Annually	.0833

Factors which reflect the normal work schedules for the month were used to convert hourly rates to a monthly basis.

Employment. Occupational employment data published in this bulletin are estimated totals for all establishments within the scope of the survey and are not limited to establishments actually studied. An occupational employment estimate was derived by multiplying the full-time employment in the occupation in each sample establishment by the establishment weight and then summing these results.

Salary averages. The mean salary (average wage rate) for a specific occupational level was obtained by dividing total wages for that level by the corresponding total employment. Median and quartile values were derived from distributions of employees by salary using 10-cent-per-hour class intervals. All salary averages in the tables were rounded to the nearest dollar. For all annual salary calculations, individual monthly salaries (to the nearest one-tenth cent) were multipled by 12 before performing the necessary data aggregation.

Salary trends. Percent increases for each occupation in text table 1 were obtained by adding the product of average annual salaries and employment for each level in each of 2 successive years and dividing the later sum by the earlier sum. To eliminate the effects of year-to-year employment shifts in this computation, average salaries in each year were multipled by employment in the most recent year.

Year-to-year percent increases for each group specified in text table 2 were determined by adding average monthly salaries for all occupational levels in the group for 2 consecutive years, and dividing the later sum by the earlier sum. The trends in text table 2 were obtained by linking changes for the individual periods.

Changes in the scope of the survey and in occupational definitions were incorporated into the various trend series as soon as two consecutive periods with comparable data were available.

Limitations

Survey occupations were limited to employees meeting the specific criteria in each job definition and were not intended to include all employees in each field of work.[6] Employees whose salary data were not available, as well as those for whom there was no satisfactory basis for classification by work level, were not taken into account in the estimates. For these reasons, and because of differences in occupational structure among establishments, estimates of occupational employment obtained from the sample of establishments studied indicate only the relative importance of occupations and levels as defined for the survey. These qualifications of employment estimates should not materially affect the accuracy of the earnings data.

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[5] For a discussion of such payments, see "Wage Highlights," *Current Wage Developments*, November 1983, pp. 1-5.

[6] Engineers, for example, include employees engaged in engineering work within a band of eight levels, starting with inexperienced engineering graduates and excluding only those within certain fields of specialization or in positions above those covered by level VIII. In contrast, occupations such as chief accountants and directors of personnel include only those with responsibility for a specific program and with duties and responsibilities as indicated for each of the more limited number of work levels selected for study.

Data for year-to-year changes in average salaries are subject to limitations which reflect the nature of the data collected. Changes in average salaries reflect not only general salary increases and merit or other increases in the same work level category, but also other factors such as employee turnover, expansions or contractions in the work force, and changes in staffing patterns within establishments with different salary levels. For example, an expansion in force may increase the proportion of employees at the minimum salary of a rate range for a work level, which would tend to lower the average of a job; a reduction or a low turnover in the work force may have the opposite effect. Similarly, promotions of employees to higher work levels of professional and administrative occupations may affect the average of each level. Established salary ranges for such occupations are relatively wide, and employees who may have been paid the maximum of the salary scale for the lower level are likely to be replaced by less experienced employees who may be paid the minimum. Occupations most likely to reflect such changes are the higher levels of professional and administrative occupations and single-incumbent positions such as chief accountant and director of personnel.

Reliability of estimates

The statistics in the report are estimates derived from a sample survey. There are two types of errors possible in an estimate based on a sample survey—sampling and nonsampling.

Sampling errors occur because observations come only from a sample, not the entire population. The particular sample used in this survey is one of a number of all possible samples of the same size that could have been selected using the same sample design. Estimates derived from the different samples would differ from each other.

A measure of the variation among these differing estimates is called the standard error or sampling error.[7] It indicates the precision with which an estimate from a particular sample approximates the average result of all possible samples. The relative standard error (RSE) is the standard error divided by the estimate. The smaller the RSE, the greater the reliability of the estimate.

Estimates of relative standard errors for the 1985 survey vary among the occupational work levels depending on such factors as the frequency with which the job occurs, the dispersion of salaries for the job, and the survey design. For the 107 publishable work levels, estimated relative standard errors for average salary estimates were distributed as follows:

Relative standard error	*Number of occupational work levels*
Less than 1 percent	47
1-2 percent	47
2-3 percent	12
3 percent or more	1

The Bureau evaluates the reliability of its estimates based in part on the value of two relative standard errors for an occupational level. For example, a 95-percent confidence interval[8] for accountants I (survey estimate = $20,628 yearly) is from $19,926 to $21,328.

Nonsampling errors can come from many sources, such as inability to obtain information from some establishments; definitional difficulties; inability of respondents to provide correct information; mistakes in recording or coding the data obtained; and other errors of collection, response, coverage, and estimation of missing data. Although not specifically measured, the survey's nonsampling errors are expected to be minimal due to the high response rate and the extensive and continuous training of field representatives, careful screening of data at several levels of review, annual maintenance and evaluation of the suitability of job definitions, and thorough field testing of new or revised job definitions.

To measure and better control nonsampling errors that occur during data collection, a quality control procedure was added to PATC in 1983 and repeated in the following years.[9] The procedure, job match validation (JMV), was designed to identify the frequency, reasons for, and sources of incorrect decisions made by Bureau field representatives in matching company jobs to survey job categories. Once identified, the problems were discussed promptly with the field representatives while the data were still being collected. Subsequently, the JMV results were tallied, reported to BLS staff, and have become the basis for remedial action at annual training conferences.

Tabulations of the 1985 JMV process showed that about 6 percent of the 2,044 job match decisions checked with respondents were subsequently changed by survey reviewers. Of those revised (126), about three-tenths were either original job matches that should have been excluded or company jobs excluded by the field representative that should have been matches for BLS occupational work levels. Most of the remaining errors were matching one work level too high or too low within the appropriate occupation, e.g., accountant IV instead of accountant III.

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[7] A replication technique with 15 random groups was used to obtain estimates of relative standard errors for the 1985 survey.

[8] A 95-percent confidence interval means that, if all possible samples were selected and an estimate of the salary and its sampling error were computed for each, then, for approximately 95 percent of the samples, the interval from 2 standard errors below the estimate to 2 standard errors above the estimate would include the true average salary. For accountants I, the 2 relative standard errors were 3.4 percent in 1985.

[9] For a more detailed description of the process, see *National Survey of Professional, Administrative, Technical, and Clerical Pay, March 1983*, Bulletin 2181 (Bureau of Labor Statistics, 1983), p.35.

Table A-1. Number of establishments and workers within scope of survey and number studied, by industry division, United States, March 1985

Industry division[1]	Minimum employment in establishments within scope of survey	Within scope of survey				Studied			
		Number of establishments	Workers in establishments			Number of establishments	Workers in establishments		
			Total	Professional and administrative	Clerical and technical support		Total	Professional and administrative	Clerical and technical support
United States									
All industries[2]	–	43,220	22,704,574	5,438,992	4,879,057	3,209	6,039,816	1,759,189	1,421,078
Manufacturing	[3]100-250	18,180	11,430,931	2,657,477	1,596,657	1,486	3,312,982	972,143	528,521
Nonmanufacturing:									
Mining	250	578	382,189	97,356	55,302	59	75,299	29,520	18,314
Construction	250	662	238,718	55,782	36,641	53	69,071	24,018	15,015
Transportation, communications, electric, gas, and sanitary services	[4]100-250	4,353	2,794,501	616,729	653,013	311	1,123,766	294,068	288,594
Wholesale trade	100	4,921	1,050,943	326,698	273,077	225	87,915	32,739	30,539
Retail trade	250	4,110	3,337,992	380,654	608,538	199	497,512	60,568	113,572
Finance, insurance, and real estate	100	7,242	2,618,471	855,912	1,385,516	507	630,582	216,592	352,317
Services[5]	[6] 50-100	3,174	870,829	448,384	270,313	369	242,689	129,541	74,204
Metropolitan areas[7]									
All industries	–	36,347	19,695,054	4,998,064	4,562,866	2,836	5,755,292	1,705,509	1,384,905
Manufacturing	[3]100-250	13,973	9,229,492	2,375,618	1,410,915	1,229	3,100,064	935,988	505,946
Nonmanufacturing:									
Mining	250	348	199,660	70,562	43,589	41	53,285	23,082	14,612
Construction	250	580	202,829	52,108	33,674	45	57,778	22,693	14,222
Transportation, communications, electric, gas, and sanitary services	[4]100-250	3,297	2,515,595	570,386	601,782	272	1,101,790	289,394	284,548
Wholesale trade	100	4,512	960,692	310,492	263,881	214	85,884	32,346	30,286
Retail trade	250	3,729	3,180,802	346,749	602,640	193	492,905	59,650	113,231
Finance, insurance, and real estate	100	6,826	2,532,465	832,498	1,342,420	484	624,367	214,676	348,996
Services[5]	[6] 50-100	3,082	853,519	439,651	263,965	358	239,219	127,680	73,154
Establishments employing 2,500 workers or more									
All industries	–	1,027	6,720,936	1,897,499	1,561,824	605	4,585,861	1,355,487	1,060,155
Manufacturing	–	494	3,701,494	1,137,554	612,708	336	2,649,931	818,356	431,908

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[1] As defined in the 1972 edition of the ***Standard Industrial Classification Manual***, U.S. Office of Management and Budget.

[2] Establishments with total employment at or above the minimum limitation indicated in the first column; excludes Alaska and Hawaii.

[3] Minimum employment size was 100 for chemical and allied products; petroleum refining and related industries; machinery, except electrical; electrical machinery, equipment, and supplies; transportation equipment; and instruments and related products. Minimum size was 250 in all other manufacturing industries.

[4] Minimum employment size was 100 for railroad transportation; local and suburban transit; deep sea foreign and domestic transportation; air transportation; communications, electric, gas, and sanitary services; and pipelines; and 250 for all other transportation industries. U.S. Postal Service is excluded from the survey.

[5] Limited to engineering, architectural, and surveying services; commercially operated research, development, and testing laboratories; credit reporting and collection agencies; computer and data processing services; management, consulting, and public relations services; noncommercial educational, scientific, and research organizations; and accounting, auditing and bookkeeping services.

[6] Minimum employment size was 50 for accounting, auditing, and bookkeeping services; and 100 for all other selected services.

[7] Metropolitan Statistical Areas and Primary Metropolitan Statistical Areas in the United States, except Alaska and Hawaii, as defined through June 1983 by the U.S. Office of Management and Budget.

Appendix B. A Note on Computer Occupations

A five-level series for nonsupervisory systems analysts and a separate four-level series for systems analyst supervisors/managers were first added to the survey in 1984. (See appendix C.) For publication purposes, however, data from these series were combined into six levels as shown at the right. In 1985, systems analyst VI was published for the first time.

The title for another computer job series, "programmer/programmer analyst" was changed to "computer programmer" in 1985. No substantive revisions to the definition, however, were made.

Level	*Systems analyst*	
	Nonsupervisory	*Supervisory/ managerial*
I	I	-
II	II	-
III	III	I
IV	IV	II
V	V	III
VI		IV

Appendix C. Occupational Definitions

The primary purpose of preparing job definitions for the Bureau's wage surveys is to assist its field staff in classifying into appropriate occupations, or levels within occupations, workers who are employed under a variety of payroll titles and different work arrangements from establishment to establishment and from area to area. This permits the grouping of occupational wage rates representing comparable job content. To secure comparability of job content, some occupations and work levels are defined to include only those workers meeting specific criteria as to training, job functions, and responsibilities. Because of this emphasis on interestablishment and interarea comparability of occupational content, the Bureau's occupational definitions may differ significantly from those in use in individual establishments or those prepared for other purposes.

Accountants and Auditors

ACCOUNTANT

Performs professional operating or cost accounting work requiring knowledge of the theory and practice of recording, classifying, examining, *and* analyzing the data and records of financial transactions. The work generally requires a bachelor's degree in accounting or, in rare instances, equivalent experience and education combined. Positions covered by this definition are characterized by the inclusion of work that is analytical, creative, evaluative, and advisory in nature. The work *draws* upon and *requires* a thorough knowledge of the fundamental doctrines, theories, principles, and terminology of accounting, and often entails some understanding of such related fields as business law, statistics, and general management. (See also chief accountant.)

Professional responsibilities in accountant positions above the entry and developmental levels include such duties as:

Analyzing the effects of transactions upon account relationships;

Evaluating alternative means of treating transactions;

Planning the manner in which account structures should be developed or modified;

Assuring the adequacy of the accounting system as the basis for reporting to management;

Considering the need for new or changed controls;

Projecting accounting data to show the effects of proposed plans on capital investments, income, cash position, and overall financial condition;

Interpreting the meaning of accounting records, reports, and statements;

Advising operating officials on accounting matters; and

Recommending improvements, adaptations, or revisions in the accounting system and procedures.

Entry and developmental level positions provide opportunity to develop ability to perform professional duties such as those enumerated above.

In addition, most accountants are also responsible for assuring the proper recording and documentation of transactions in the accounts. They, therefore, frequently direct nonprofessional personnel in the actual day-to-day maintenance of books of accounts, the accumulation of cost or other comparable data, the preparation of standard reports and statements, and similar work. (Positions involving such supervisory work, but not including professional duties as described above, are not included in this description.)

Excluded are accountants whose *principal or sole* duties consist of designing or improving accounting systems or other nonoperating staff work, e.g., budget analysis, financial analysis, financial forecasting, tax advising, etc. (The criteria that follow for distinguishing among the several levels of work are inappropriate for such jobs.) Note, however, that professional accountant positions with responsibility for recording or reporting accounting data relative to taxes are included, as are other operating or cost accountants whose work includes, but is not limited to, improvement of the accounting system.

Some accountants use electronic data processing equipment to process, record, and report accounting data. In some such cases, the machine unit is a subordinate segment of the accounting system; in others, it is a separate entity or is attached to some other organization. In either instance, provided that the primary responsibility of the position is professional accounting work of the type otherwise included, the use of data processing equipment of any type does not of itself exclude a position from the accountant description nor does it change its level.

Accountant I

General characteristics. At this beginning professional level, the accountant learns to apply the principles, theories, and concepts of accounting to a specific system. The position is distinguishable from nonprofessional positions by the variety of assignments; rate and scope of development expected; and the existence, implicit or explicit, of a planned training program designed to give the entering accountant practical experience. (Terminal positions are excluded.)

Direction received. Works under close supervision of an experienced accountant whose guidance is directed primarily to the development of the trainee's professional ability and to the evaluation of advancement potential. Limits of assignments are clearly defined, methods of procedure are specified, and kinds of items to be noted and referred to supervisor are identified.

Typical duties and responsibilities. Performs a variety of accounting tasks such as: Examining a variety of financial statements for completeness, internal accuracy, and conformance with uniform accounting classifications or other specific accounting requirements; reconciling reports and financial data with financial statements already on file, and pointing out apparent inconsistencies or errors; carrying out assigned steps in an accounting analysis, such as computing standard ratios; assembling and summarizing accounting literature on a given subject; preparing relatively simple financial statements not involving problems of analysis or presentation; and preparing charts, tables, and other exhibits to be used in reports. In addition, may also perform some nonprofessional tasks for training purposes.

Responsibility for direction of others. Usually none.

Accountant II

General characteristics. At this level, the accountant makes practical application of technical accounting practices and concepts beyond the mere application of detailed rules and instructions, as a phase in developing greater professional competence. Initial assignments are designed to expand practical experience and to develop professional judgment in the application of basic accounting techniques to simple problems. Is expected to be competent in the application of standard procedures and requirements to routine transactions, to raise questions about unusual or questionable items, and to suggest solutions. (Terminal positions are excluded.)

Direction received. Work is reviewed closely to verify its general accuracy and coverage of unusual problems, to insure conformance with required procedures and special instructions, and to assure professional growth. Progress is evaluated in terms of ability to apply professional knowledge to basic accounting problems in the day-to-day operations of an established accounting system.

Typical duties and responsibilities. Performs a variety of accounting tasks, e.g., prepares routine working papers, schedules, exhibits, and summaries indicating the extent of the examination and presenting and supporting findings and recommedations. Examines a variety of accounting documents to verify accuracy of computations and to ascertain that all transactions are properly supported, are in accordance with pertinent policies and procedures, and are classified and recorded according to acceptable accounting standards.

Responsibility for direction of others. Usually none, although sometimes responsible for supervision of a few clerks.

Accountant III

General characteristics. The accountant at this level applies well-established accounting principles, theories, concepts, and practices to moderately difficult problems. Receives detailed instructions concerning the overall accounting system and its objectives, the policies and procedures under which it is operated, and the nature of changes in the system or its operation. Characteristically, the accounting system or assigned segment is stable and well established (i.e., the basic chart of accounts, classifications, the nature of the cost accounting system, the report requirements, and the procedures are changed infrequently).

Depending upon the workload involved, the accountant may have such assignments as supervision of the *day-to-day operation* of: (a) The entire system of a relatively small establishment; or (b) a major segment (e.g., general accounting, cost accounting, or financial statements and reports) of a somewhat larger system; or (c) in a complex system, may be assigned to a relatively narrow and specialized segment dealing with some problem, function, or portion of work which is appropriate for this level.

Direction received. A higher level professional accountant normally is available to furnish advice and assistance as needed. Work is reviewed for technical accuracy, adequacy of professional judgment, and compliance with instructions through spot checks, appraisal of results, subsequent processing, analysis of reports and statements, and other appropriate means.

Typical duties and responsibilities. The primary responsibility of most positions at this level is to assure that the assigned day-to-day operations are carried out in accordance with established accounting principles, policies, and objectives. The accountant performs such professional work as: Developing nonstandard reports and statements (e.g., those containing cash forecasts reflecting the interrelations of accounting, cost budgeting, or comparable information); interpreting and pointing out trends or deviations from standards; projecting data into the future; predicting the effects of changes in operating programs; or identifying management informational needs, and refining account structures or reports accordingly.

Within the limits of delegated responsibility, makes day-to-day decisions concerning the accounting treatment of financial transactions. Is expected to recommend solutions to moderately difficult problems and propose changes in the accounting system for approval at higher levels. Such recommendations are derived from personal knowledge of the application of well-established principles and practices.

Responsibility for direction of others. In most instances, is responsible for supervision of a subordinate nonprofessional staff; may coordinate the work of lower level professional accountants.

Accountant IV

General characteristics. At this level, the accountant applies well-established accounting principles, theories, concepts, and practices to a wide variety of difficult problems. Receives instructions concerning the objectives and operation of the overall accounting system. Compared with level III, the accounting system or assigned segment is more complex, i.e., (a) is relatively unstable, (b) must adjust to new or changing company operations, (c) is substantially larger, *or* (d) is complicated by the need to provide and coordinate separate or specialized accounting treatment and reporting (e.g., cost accounting using standard cost, process cost, and job order techniques) for different operations or divisions of company.

Depending upon the workload and degree of coordination involved, the accountant IV may have such assignments as the supervision of the *day-to-day operation* of: (a) The entire accounting system of an establishment having a few relatively stable accounting segments; or (b) a major segment (e.g., general accounting, cost accounting, or financial statements and reports) of an accounting system serving a larger and more complex establishment; or (c) in a complex system, may be assigned to a relatively narrow and specialized segment dealing with some problem, function, or portion of work which is itself of the level of difficulty characteristic of this level.

Direction received. A higher level accountant normally is available to furnish advice and assistance as needed. Work is reviewed by spot checks and appraisal of results for adequacy of professional judgment, compliance with instructions, and overall accuracy and quality.

Typical duties and responsibilities. As in level III, a primary characteristic of most positions at this level is the responsibility of operating an accounting system or major segment of a system in the intended manner.

The accountant IV exercises professional judgment in making frequent, appropriate recommendations for: New accounts; revisions in the account structure; new types of ledgers; revisions in reporting system or subsidiary records; and changes in instructions regarding the use of accounts, new or refined account classifications or definitions; etc. Also makes day-to-day decisions concerning the accounting treatment of financial transactions and is expected to recommend solutions to complex problems beyond incumbent's scope of responsibility.

Responsibility for direction of others. Accounting staff supervised, if any, may include professional accountants.

Accountant V

General characteristics. The accountant V applies accounting principles, theories, concepts, and practices to the solution of problems for which no clear precedent exists or performs work which is of greater than average responsibility due to the nature or magnitude of the assigned work. Responsibilities at this level, in contrast to accountants at level IV, extend beyond accounting system maintenance to the solution of more complex technical and managerial problems. Work of accountants V is more directly concerned with what the accounting system (or segment) should be, what operating policies and procedures should be established or revised, and what is the managerial as well as the accounting meaning of the data included in the reports and statements for which they are responsible. Typically, this level of work approaches chief accountant positions in terms of the nature of the concern for the accounting system and its operation, but not in terms of the breadth or scope of responsibility.

Examples of assignments characteristic of this level are supervision of the ***day-to-day operation*** of: (a) The entire accounting system of an establishment having a few relatively complex accounting segments; or (b) a major segment of a larger and more complex accounting system; or (c) the entire accounting system (or major segment) of a company that has a relatively stable and conventional accounting system when the work includes significant responsibility for accounting systems design and development; or (d) in a complex system, may be assigned to a relatively narrow and specialized segment dealing with some problem, function, or portion of work which is of a difficulty characteristic of this level.

Direction received. An accountant of higher level normally is available to furnish advice and assistance as needed. Work is reviewed for adequacy of professional judgment, compliance with instructions, and overall quality.

Typical duties and responsibilities. The accountant V performs such professional work as: Participating in the development and coordinating the implementation of new or revised accounting systems, and initiating necessary instructions and procedures; assuring accounting reporting systems and procedures are in compliance with established company policies, regulations, and acceptable accounting practices; providing technical advice and services to operating managers, interpreting accounting reports and statements, and identifying problem areas; and evaluating completed assignments for conformance with applicable policies, regulations, and tax laws.

Responsibility for direction of others. Accounting staff supervised generally includes professional accountants.

Accountant VI

General characteristics. At this level, the accountant applies accounting principles, theories, concepts, and practices to specialized, unique or nonrecurring complex problems (e.g., implementation of specialized automated accounting systems). The work is substantially more difficult and of greater responsibility than level V because of the unusual nature, magnitude, importance, or overall impact of the work on the accounting program.

At this level, the accounting system or segment is usually complex, i.e., (a) is generally unstable, (b) must adjust to the frequent changing needs of company operations, or (c) is complicated by the need to provide specialized or individualized reports.

Examples of assignments at this level are the supervision of the ***day-to-day operation*** of: (a) A large and complex corporate accounting system, or (b) a major segment (e.g., general accounting, property accounting, etc.) of an unusually complex accounting system requiring technical expertise in a particular accounting field (e.g., cost accounting, tax accounting, etc.).

Direction received. A higher level professional accountant is normally available to furnish advice as needed. Work is reviewed for adequacy of professional judgment, compliance with instructions and policies, and overall quality.

Typical duties and responsibilities. Accountants at this level are delegated complete responsibility from higher authority to establish and implement new or revised accounting policies and procedures. Typically, accountants VI participate in decisionmaking sessions with operating managers who have policymaking authority for their subordinate organizations or establishments; recommend management actions or alternatives which can be taken when accounting data disclose unfavorable trends, situations, or deviations; and assist management officials in applying financial data and information to the solution of administrative and operating problems.

Responsibility for direction of others. Accounting staff supervised generally includes professional accountants.

Note: Excluded are accountants above level VI whose principal function is to direct, manage, or administer an accounting program in that they are *primarily* concerned with the administrative, budgetary, and policy matters of the program rather than the actual supervision of the *day-to-day operations* of an accounting program. This type of work requires extensive managerial ability as well as superior professional competence in order to cope with the technical accounting and management problems encountered. Typically, the level of work involves responsibility for more than one accounting activity (e.g., cost accounting, sales accounting, etc.).

CHIEF ACCOUNTANT

As the top technical expert in accounting, is responsible for directing the accounting program for a company or for an establishment of a company. The minimum accounting program includes: (1) General accounting (assets, liabilities, income, expense, and capital accounts, including responsibility for profit and loss and balance sheet statements); ***and*** (2) at least one other ***major*** accounting activity, typically tax accounting, cost accounting, property accounting, or sales accounting. It may also include such other activities as payroll and timekeeping, and mechanical or electronic data processing operations which are an adjunct of the accounting system. (Responsibility for an internal audit program is typically ***not*** included.)

The responsibilities of the chief accountant include *all* of the following:

1. On own responsibility, developing, adapting, or revising an accounting system to meet the needs of the organization;
2. Supervising, either directly or through subordinate supervisors, the operation of the system with full management responsibility for the quality and quantity of work performed, training and development of subordinates, work scheduling and review, coordination with other parts of the organization served, etc.;
3. Providing directly, or through an official such as a comptroller, advisory services to the top management officials of the organization served as to:
    a. The status of financial resources and the financial trends or results of operations as revealed by accounting data, and selecting a manner of presentation that is meaningful to management;
    b. Methods for improving operations as suggested by an expert knowledge of accounting, e.g., proposals for improving cost control, property management, credit and collection, tax reduction, or similar programs.

Excluded are positions with responsibility for the accounting program if they also include (as a major part of the job) responsibility for budgeting; work measurement; organization, methods, and procedures studies; or similar nonaccounting functions. (Positions of such breadth are sometimes titled comptroller, budget and accounting manager, financial manager, etc.)

Some positions responsible for supervising general accounting and one or more other major accounting activities but which do *not* fully meet *all* of the responsibilities of a chief accountant specified above may be covered by the descriptions for accountant.

Chief accountant jobs which meet the characteristics described are classified by level of work according to (a) authority and responsibility, and (b) technical complexity, using table C-1.

Authority and Responsibility

AR-1. The accounting system (i.e., accounts, procedures, and reports to be used) has been prescribed in considerable detail by higher levels in the company or organization. The chief accountant has final, unreviewed authority, within the prescribed system, to expand it to fit the particular needs of the organization served, e.g., in the following or comparable ways:

Providing greater detail in accounts and reports or financial statements;

Establishing additional accounting controls, accounts, subaccounts, and subsidiary records; and

Providing special or interim reports and statements needed by the manager responsible for the *day-to-day operations* of the organization served.

This degree of authority is typically found at a plant or similar subordinate establishment.

AR-2. The basic accounting system is prescribed in broad outline rather than in specific detail. While certain major financial reports, overall accounts, and general policies are required by the basic system, the chief accountant has broad latitude and *authority* to decide the specific methods, procedures, accounts, reports, etc., to be used within the organizational segment served. Approval must be secured from higher levels only for those changes which would basically affect the broad requirements prescribed by such higher levels. Typical responsibilities include:

Evaluating and taking final action on recommedations proposed by subordinate establishments for changes in aspects of the accounting system or activities not prescribed by higher authority;

Extending cost accounting operations to areas not previously covered;

Instituting new cost accounting procedures;

Expanding the utilization of computers within the accounting process; and

Preparing accounting reports and statements reflecting the events and progress of the entire organization for which incumbent is responsible, often consolidating data submitted by subordinate segments.

This degree of authority is most typically found at intermediate organizational levels such as regional offices, or division or subsidiary headquarters. It is also found in some company-level situations where the authority of the chief accountant is less extensive than is described in AR-3. More rarely, it is found in plant-level chief accountants who have been delegated more authority than usual for such positions as described in AR-1.

AR-3. Has complete responsibility for establishing and maintaining the framework for the basic accounting system used in the company, subject only to general policy guidance and control from a higher level company official responsible for general financial management. Typical responsibilities include:

Determining the basic characteristics of the company's accounting system and the specific accounts to be used;

Devising and preparing accounting reports and statements required to meet management's needs for data;

Establishing basic accounting policies, interpretations, and procedures;

Reviewing and taking action on proposed revisions to the company's accounting system suggested by subordinate units; and

Taking final action on all technical accounting matters.

Characteristically, participates extensively in broad company management processes by providing accounting advice, interpretations, or recommendations based on data accumulated in the accounting system and on professional judgment and experience.

Technical Complexity

TC-1. The organization which the accounting program serves has relatively few functions, products, work processes, etc., and these tend to be stable and unchanging. The accounting system operates in accordance with well-established principles and practices or those of equivalent difficulty which are typical of that industry.

TC-2. The organization which the accounting program serves has a relatively large number of functions, products, work processes, etc., which require substantial and frequent adaptations of the basic system to meet management needs (e.g., adoption of new accounts, subaccounts, and subsidiary records; revision of instructions for the use of accounts; improvements or expansion of methods for accumulating and reporting cost data in connection with new or changed work processes).

TC-3. The organization which the accounting program serves puts a *heavy demand on the accounting organization for specialized and extensive adaptations* of the basic system to meet management needs. Such demands arise because the functions, products, work processes, etc., of the organization are very numerous, diverse, unique, or specialized, or there are other comparable

Table C-1. Criteria for matching chief accountants by level

Level	Authority and responsibility[1]	Technical complexity[1]	Subordinate professional accounting staff
I	AR-1	TC-1	Only 1 or 2 professional accountants who do not exceed the accountant III job definition.
II	AR-1	TC-2	About 5 to 10 professional accountants, with at least one or two matching the accountant IV job definition.
	or		
	AR-2	TC-1	About 5 to 10 professional accountants. Most of these match the accountant III job definition, but one or two may match the accountant IV job definition.
	or		
	AR-3	TC-1	Only 1 or 2 professional accountants who do not exceed the accountant IV job definition.
III	AR-1	TC-3	About 15 to 20 professional accountants. At least one or two match the accountant V job definition.
	or		
	AR-2	TC-2	About 15 to 20 professional accountants. Many of these match the accountant IV job definition, but some may match the accountant V job definition.
	or		
	AR-3	TC-1	About 5 to 10 professional accountants. Most of these match the accountant III job definition, but one or two may match as high as accountant V.
IV	AR-2	TC-3	About 25 to 40 professional accountants. Many of these match the accountant V job definition, but several may exceed that level.
	or		
	AR-3	TC-2	About 15 to 20 professional accountants. Most of these match the accountant IV job definition, but several may match the accountant V and one or two may exceed that level.
V	AR-3	TC-3	About 25 to 40 professional accountants. Many of these match the accountant V job definition, but several may exceed that level.

[1] AR-1, -2, -3, and TC-1, -2, and -3 are explained in the text.

complexities. Consequently, the accounting system, to a considerable degree, is developed well beyond established principles and accounting practices in order to:

Provide for the solution of problems for which no clear precedents exist; or

Provide for the development or extension of accounting theories and practices to deal with problems to which these theories and practices have not previously been applied.

Subordinate Staff

In table C-1, the number of professional accountants supervised is recognized to be a relatively crude criterion for distinguishing between various levels. It is to be considered less important in the matching process than the other criteria. In addition to the staff of professional accountants in the system for which the chief accountant is responsible, there are clerical, machine operation, bookkeeping, and related personnel.

AUDITOR

Performs professional auditing work requiring a bachelor's degree in accounting or, in rare instances, equivalent experience and education combined. Audits the financial records and practices of a company, or of divisions or components of the company, to appraise systematically and verify the accounting accuracy of records and reports and to assure the consistent application of accepted accounting principles. Evaluates the adequacy of the accounting system and internal financial controls. Makes appropriate recommendations for improvement as necessary. To the extent determined necessary, examines the transactions entering into the balance sheet, and the transactions entering into income, expense, and cost accounts. Determines:

1. The existence of recorded assets (including the observation of the taking of physical inventories) and the all-inclusiveness of recorded liabilities.
2. The accuracy of financial statements or reports and the fairness of presentation of facts therein.
3. The propriety or legality of transactions.
4. The degree of compliance with established policies and procedures concerning financial transactions.

Excluded from this definition are:

a. Auditors primarily examining or reporting on the financial management of company operations. These auditors evaluate such matters as: (1) The operation's degree of compliance with the principles of sound financial management; and (2) the effectiveness of management and operating controls.

b. Auditors assigned to audit programs which are confined on a relatively permanent basis to repetitive examination of a limited area of company operations and accounting processes, e.g., accounts payable and receivable; payroll; physical inventory; and branch offices which do not have complete accounting systems. This does not preclude positions responsible for performing a segment of an audit (i.e., examining individual items on a balance sheet, rather than the entire balance sheet), *as long as the work directly relates to the financial audit program;* and

c. EDP auditors. These positions require an extensive knowledge of computer systems, programming, etc.

Auditor I

General characteristics. As a trainee auditor at the entering professional level, performs a variety of routine assignments. Typically, the trainee is rotated through a variety of tasks under a planned training program designed to provide practical experience in applying the principles, theories, and concepts of accounting and auditing to specific situations. (Terminal positions are excluded.)

Direction received. Works under close supervision of an experienced auditor whose guidance is directed primarily to the development of the trainee's professional ability and to the evaluation of advancement potential. Limits of assignments are clearly defined, methods of procedure are specified, and kinds of items to be noted and referred to supervisor are identified.

Typical duties and responsibilities. Assists in making audits by performing such tasks as: Verifying the accuracy of the balances in various records; examining a variety of types of documents and vouchers for accuracy of computations; checking transactions to assure they are properly documented and have been recorded in accordance with correct accounting classifications; verifying the count of inventories; preparing detailed statements, schedules, and standard audit working papers; counting cash and other assets; and preparing simple reconciliations and similar functions.

Auditor II

General characteristics. At this level, the professional auditor serves as a junior member of an audit team, independently performing selected portions of the audit which are limited in scope and complexity, as a phase in developing greater professional competence. Auditors at this level typically have acquired knowledge of company operations, policies, and procedures. (Terminal positions are excluded.)

Direction received. Detailed instructions are furnished and the work is reviewed to the extent necessary to verify its general accuracy and coverage of unusual problems, to insure conformance with required procedures and special instructions, and to assure the auditor's professional growth. Any technical problems not covered by instructions are brought to the attention of a superior. Progress is evaluated in terms of ability to apply professional knowledge to basic auditing situations.

Typical duties and responsibilities. Applies knowledge of *accounting theory* and audit practices to a variety of relatively simple professional problems in audit assignments, including such tasks as: The verification of reports against source accounts and records to determine their reliability; reconciliation of bank and other accounts and verifying the detail of recorded transactions; detailed examinations of cash receipts and disbursement vouchers, payroll records, requisitions, work orders, receiving reports, and other accounting documents to ascertain that transactions are properly supported and are recorded correctly from an accounting or regulatory standpoint; or preparation of working papers, schedules, and summaries.

Auditor III

General characteristics. Work at this level consists of the audit of operations and accounting processes that are relatively stable, well established, and typical of the industry. The audits primarily involve the collection and analysis of readily available findings; there is previous audit experience that is directly applicable; the audit reports are normally prepared in a prescribed format using a standard method of presentation; and few, if any, major problems are anticipated. The work performed requires the *application* of substantial knowledge of accounting principles and practices, e.g., bases for distinguishing among capital maintenance and operating expenses; accruing reserves for taxes; and other accounting considerations of an equivalent nature.

Direction received. Work is normally within an established audit program and supervision is provided by a higher level auditor who outlines and discusses assignments. Work is spot checked in progress. Completed assignments are reviewed for adequacy of coverage, soundness of judgment, compliance with professional standards, and adherence to policies.

Typical duties and responsibilities. The auditor examines transactions and verifies accounts; observes and evaluates accounting procedures and internal controls; and prepares audit working papers and submits an audit report in the required pattern containing recommendations for needed changes or improvements. Usually is responsible for selecting the detailed audit methods to follow, choosing the audit sample and its size, determining the extent to which discrepancies need to be investigated, and deciding the depth of the analyses required to support reported findings and conclusions.

Examples of assignments involving work at this level:

1. As a team leader or working alone, independently conducts audits of the complete accounts and related operations of smaller or less complex companies (e.g., involving a centralized accounting system with few or no subordinate, subsidiary, or branch accounting records) or of comparable segments of larger companies.
2. As a member of an audit team, independently accomplishes varied audit assignments of the above described characteristics, typically major segments of complete audits, or assignments otherwise limited in scope, of larger and more complex companies (e.g., complex in that the accounting system entails cost, inventory, and comparable specialized *systems* integrated with the general accounting system).

Illustrative of such assignments are the audit and initial review of the accounting treatment and validity of reporting of overhead expenses in a large manufacturing or maintenance organization (e.g., major repair yard of a railroad); or the checking, verification, and balancing of all accounts receivable and accounts payable; or the analysis and verification of assets and reserves; or the inspection and evaluation of account controls and procedures.

Auditor IV

General characteristics. Auditors at this level are experienced professionals who apply thorough knowledge of accounting principles and theory in connection with a *variety* of audits. Work at this level is characterized by the audit of organizations and accounting processes which are complex and difficult because of such factors as: Presence of new or changed programs and accounting systems; existence of major specialized accounting functions (e.g., cost accounting, inventory accounting, sales accounting), in addition to general accounting; need to consider extensive and complicated regulatory requirements; lack of or difficulty in obtaining information; and other similar factors. Typically, a variety of different assignments are encountered over a period of time, e.g., 1 year. The audit reports prepared are comprehensive, explain irregularities, cite rules and regulations violated, recommend remedial actions, and contain analyses of items of special importance or interest to company management.

Direction received. Within an established audit program, has responsibilities for independently planning and executing audits. Usually difficult problems are discussed with the supervisor who also reviews completed assignments for adherence to principles and standards and the soundness of conclusions.

Typical duties and responsibilities. Auditors at this level have full responsibility for planning the audit, including determination of the aspects to emphasize, methods to be used, development of nonstandard or specialized audit aids, such as questionnaires, etc., *where previous audit experience and plans are of limited applicability.*

Included in the scope of work that characterizes this level are such functions as: Evaluation of methods used for determining depreciation rates of equipment; evaluation of assets where original costs are unknown; evaluation of the reliability of accounting and reporting systems; analysis of cost accounting systems and cost reports to evaluate the basis for cost and price setting; evaluation of accounting procurement and supply management records, controls, and procedures; and many others.

Examples of assignments involving work at this level:

1. As a team leader or working alone, independently plans and conducts audits of the complete accounts and related operations of relatively large complex companies (e.g., complex in that the accounting system entails cost, inventory, and comparable specialized accounting *systems* integrated with the general accounting system) or of company branch, subsidiary, or affiliated organizations which are individually of comparable size and complexity.
2. As a member of an audit team, independently plans and accomplishes audit assignments that constitute major segments of audits of very large and complex organizations, for example, those with financial responsibilities so great as to involve specialized subordinate, subsidiary, or affiliate accounting systems that are complete in themselves.

NOTE: Excluded from level IV are auditors who, as team leaders or working alone, conduct *complete* audits of very large and complex organizations, for example, those with financial responsibilities so great as to involve specialized subordinate, subsidiary, or affiliate accounting systems that are complete in themselves; or are team members assigned to major segments of audits of even larger or more complex organizations. Also excluded are positions primarily responsible for overseeing multiple concurrent audits.

PUBLIC ACCOUNTANT

Performs professional auditing work in a public accounting firm. Work requires at least a bachelor's degree in accounting. Participates in or conducts audits to ascertain the fairness of financial representations made by client companies. May also assist the client in improving accounting procedures and operations.

Examines financial reports, accounting records, and related documents and practices of clients. Determines whether all important matters have been disclosed and whether procedures are consistent and conform to acceptable practices. Samples and tests transactions, internal controls, and other elements of the accounting system(s) as needed to render the accounting firm's final written opinion.

Excluded are positions which do not require full professional accounting training. Also excluded are specialist positions in tax or management advisory services.

Public Accountant I

General characteristics. As an entry level public accountant, serves as a junior member of an audit team. Receives classroom and on-the-job training to provide practical experience in applying the principles, theories, and concepts of accounting and auditing to specific situations. (Positions held by trainee public accountants with advanced degrees, such as MBA's, are excluded at this level.)

Direction received. Complete instructions are furnished and work is reviewed to verify its accuracy, conformance with required procedures and instructions, and usefulness in facilitating the accountant's professional growth. Any technical problems not covered by instructions are brought to the attention of a superior.

Typical duties and responsibilities. Carries out basic audit tests and procedures, such as: Verifying reports against source accounts and records; reconciling bank and other accounts; and examining cash receipts and disbursements, payroll records, requisitions, receiving reports, and other accounting documents in detail to ascertain that transactions are properly supported and recorded. Prepares selected portions of audit working papers.

Public Accountant II

General characteristics. At this level, the public accountant carries out routine audit functions and detail work with relative independence. Serves as a member of an audit team on assignments planned to provide exposure to a variety of client organizations and audit situations. Specific assignments depend upon the difficulty and complexity of the audit and whether the client has been previously audited by the firm. On moderately complex audits where there is previous audit experience by the firm, accomplishes complete segments of the audit (i.e., functional work areas such as cash, receivables, etc.). When assigned to more complicated audits, carries out activities similar to public accountant I.

Direction received. Works under the supervision of a higher level public accountant who provides instructions and continuing direction as necessary. Work is spot checked in progress and reviewed upon completion to determine the adequacy of procedures, soundness of judgment, compliance with professional standards, and adherence to clearly established methods and techniques. All interpretations are subject to close professional review.

Typical duties and responsibilities. Carries out a variety of sampling and testing procedures in accordance with the prescribed audit program, including examination of transactions and verification of accounts, the analysis and evaluation of accounting practices and internal controls, and other detail work. Prepares a share of the audit working papers and participates in drafting reports. In moderately complex audits, may assist in selecting appropriate tests, samples, and methods commonly applied by the firm and may serve as primary assistant to the accountant in charge. In more complicated audits, concentrates on detail work. Occasionally, may be in charge of small, uncomplicated audits which require only one or two other subordinate accountants. Personal contacts usually involve only the exchange of factual technical information and are usually limited to the client's operating accounting staff and department heads.

Public Accountant III

General characteristics. At this level, the public accountant is in charge of a complete audit and may lead a team of several subordinates. Audits are usually accomplished one at a time and are typically carried out at a single location. The firms audited are typically moderately complex, and there is usually previous audit experience by the firm. The audit conforms to standard procedural guidelines, but is often tailored to fit the client's business activities. Routine procedures and techniques are sometimes inadequate and require adaptation. Necessary data are not always readily available. When assigned to more difficult and complex audits (see level IV), the accountant may run the audit of a major component or serve as the primary assistant to the accountant in charge.

Direction received. Works under the general supervision of a higher level public accountant who oversees the operations of the audit. Work is performed independently, applying generally accepted accounting principles and auditing standards, but assistance on difficult technical matters is available. Work may be checked occasionally during progress for appropriateness and adherence to time requirements, but routine analyses, methods, techniques, and procedures applied at the worksite are expected to be correct.

Typical duties and responsibilities. Is responsible for carrying out the technical features of the audit, leading team members, and personally performing the most difficult work. Carries out field work in accordance with the general format prescribed in the audit program, but selects specific methods and types and sizes of samples and tests. Assigns work to team members, furnishes guidance, and adjusts workloads to accommodate daily priorities. Thoroughly reviews work performed for technical accuracy and adequacy. Resolves anticipated problems within established guidelines and priorities but refers problems of unusual difficulty to superiors for discussion and advice. Drafts financial statements, final reports, management letters, and other closing memoranda. Discusses significant recommendations with superiors and may serve as technical resource at "closing" meetings with clients. Personal contacts are usually with chief accountants and assistant controllers of medium-size companies and divisions of large corporations to explain and interpret policies and procedures governing the audit process.

Public Accountant IV

General characteristics. At this level, the public accountant directs field work including difficult audits—e.g., those involving initial audits of new clients, acquisitions, or stock registrations—and may oversee a large audit team split between several locations. The audit team usually includes one or more level III public accountants who handle major components of the audit. The audits are complex and clients typically include those engaged in projects which span accounting periods; highly regulated industries which have various external reporting requirements; publicly held corporations; or businesses with very high dollar or transaction volume. Clients are frequently large with a variety of operations which may have different accounting systems. Guidelines may be general or lacking and audit programs are intricate, often requiring extensive tailoring to meet atypical or novel situations.

Direction received. Works under general supervision. The supervisor sets overall objectives and resource limits but relies on the accountant to fully plan and direct all technical phases of the audit. Issues not covered by guidelines or known precedents are discussed with the supervisor, but the accountant's recommended approaches and courses of action are normally approved. Work is reviewed for soundness of approach, completeness, and conformance with established policies of the firm.

Typical duties and responsibilities. Is responsible for carrying out the operational and technical features of the audit, directing the work of team members, and personally performing the most difficult work. Often participates in the development of the audit scope, and drafts complicated audit programs with a large number of concurrently executed phases. Independently develops audit steps and detailed procedures, deviating from traditional methods to the extent required. Makes program adjustments as necessary once an audit has begun; and selects specific methods, types, and sizes of samples, the extent to which discrepancies need to be investigated, and the depth of required analyses. Resolves most operational difficulties and unanticipated problems.

Assigns work to team members; reviews work for appropriateness, conformance to time requirements, and adherence to generally accepted accounting principles and auditing standards. Consolidates working papers, drafts reports and findings; and prepares financial statements, management letters, and other closing memoranda for management approval. Participates in "closing" meetings as a technical resource and may be called upon to sell or defend controversial and critical observations and recommendations. Personal contacts are extensive and typically include top executives of smaller clients and mid- to upper-level financial and managment officers of large corporations, e.g., assistant controllers or controllers. Such contacts involve coordinating and advising on work efforts and resolving operating problems.

NOTE: Excluded from this level are public accountants who direct field work associated with the complete range of audits undertaken by the firm, lead the largest and most difficult audits, and who frequently oversee teams performing concurrent audits. This type of work requires extensive knowledge of one or more industries to make subjective determinations on questions of tax, law, accounting, and business practices. Audits may be complicated by such factors as: The size and diversity of the client organization (e.g., multinational corporations and conglomerates with a large number of separate and distinct subsidiaries); accounting issues where precedents are lacking or in conflict; and, in some cases, clients who are encountering substantial financial difficulties. They perform most work without technical supervision, and completed audits are reviewed mainly for propriety of recommendations and conformance with general policies of the firm. Also excluded are public accountants whose principal function is to manage, rather than perform accounting work, and the equity owners of the firm who have final approval authority.

Personnel Management

JOB ANALYST

Performs work involved in collecting, analyzing, and developing occupational data relative to jobs, job qualifications, and worker characteristics as a basis for compensating employees in a fair, equitable, and uniform manner. Performs such duties as studying and analyzing jobs and preparing descriptions of duties and responsibilities and of the physical and mental requirements needed by workers; evaluating jobs and determining appropriate wage or salary levels in accordance with their difficulty and responsibility; independently conducting or participating with representatives of other companies in conducting compensation surveys within a locality or labor market area; assisting in administering merit rating programs; reviewing changes in wages and salaries indicated by surveys and recommending changes in pay scales; and auditing individual jobs to check the propriety of evaluations and to apply current job classifications.

Excluded are:

a. Positions also responsible for supplying management with a high technical level of advice regarding solution of broad personnel management problems;

b. Positions not requiring: (1) Three years of administrative, technical, or substantive clerical experience; (2) a bachelor's degree in any field; or (3) any equivalent combination of experience and education yielding basic skills in problem analysis and communication.

Job Analyst I

As a trainee, performs work in designated areas and of limited occupational scope. Receives immediate supervision in assignments designed to provide training in the application of established methods and techniques of job analysis. Studies the least difficult jobs and prepares reports for review by a job analyst of higher level.

Job Analyst II

Studies, describes, and evaluates jobs in accordance with established procedures. Is usually assigned to the simpler kinds of both wage and salaried jobs in the establishment. Works independently on such assignments but is limited by defined areas of assignment and instructions of superior.

Job Analyst III

Analyzes and evaluates a variety of wage and salaried jobs in accordance with established evaluation systems and procedures. May conduct wage surveys within the locality or participate in conducting surveys of broad compensation areas. May assist in developing survey methods and plans. Receives general supervision but responsibility for final action is limited.

Job Analyst IV

Analyzes and evaluates a variety of jobs in accordance with established evaluation systems and procedures, and is given assignments which regularly include responsibility for the more difficult kinds of jobs. ("More difficult" means jobs which consist of hard-to-understand work processes; e.g., professional, scientific, administrative, or technical; *or* jobs in new or emerging occupational fields; *or* jobs which are being established as part of the creation of new organizations; *or* where other special considerations of these types apply.) Receives general supervision, but responsibility for final action is limited. May participate in the development and installation of evaluation or compensation systems, which may include those for merit rating programs. May plan survey methods and conduct or direct surveys within a broad compensation area.

DIRECTOR OF PERSONNEL

Directs a personnel management program for a company or a segment of a company. Serves top management officials of the organization as the source of advice and assistance on personnel management matters and problems generally; is typically consulted on the personnel implications of planned changes in management policy or program, the effects on the organization of economic or market trends, product or production method changes, etc.; and represents management in contacts with other companies, trade associations, government agencies, etc., dealing primarily with personnel management matters.

Typically, the director of personnel for a company reports to a company officer in charge of industrial relations and personnel management activities or an officer of similar level. Below the company level, the director of personnel typically reports to a company officer or a high management official who has responsibility for the operation of a plant, establishment, or other segment of the company.

For a job to be covered by this definition, the personnel management program *must include* responsibility for *all three* of the following functions:

1. *Administering a job evaluation system:* i.e., a system in which there are established procedures by which jobs are analyzed and evaluated on the basis of their duties, responsibilities, and qualification requirements in order to provide a foundation for equitable compensation. Typically, such a system includes the use of one or more sets of job evaluation factors and the preparation of formal job descriptions. It *may* also include such related functions as wage and salary surveys or merit rating system administration. The job evaluation system(s) does not necessarily cover all jobs in the organization, but does cover a substantial portion of the organization.
2. *Employment and placement function:* i.e., recruiting actively for at least some kinds of workers through a variety of sources (e.g., schools or colleges, employment agencies, professional societies, etc.); evaluating applicants against demands of particular jobs by use of such techniques as job analysis to determine requirements, interviews, written tests of aptitude, knowledge or skill, reference checks, experience evaluations, etc.; recommending selections and job placements to management, etc.
3. *Employee relations and services function:* i.e., functions designed to maintain employees' morale and productivity at a high level (e.g., administering a formal or informal grievance procedure; identifying and recommending solutions for personnel problems such as absenteeism, high turnover, low productivity etc.; administration of beneficial suggestions system, retirement, pension, or insurance plans, merit rating system, etc.; overseeing cafeteria operations, recreational programs, industrial health and safety programs, etc.).

In addition, positions covered by this definition may, but do not necessarily, include responsibilities in the following areas:

a. Employee training and development;

b. Labor relations activities which are confined mainly to the administration, interpretation, and application of those aspects of labor union contracts that are essentially of the type described under (3) above. May also participate in bargaining of a subordinate nature, e.g., to negotiate detailed settlement of such matters as specific rates, job classifications, work rules, hiring or layoff procedures, etc., within the broad terms of a general agreement reached at higher levels, or to supply advice and information on technical points to the company's principal representative;

c. Equal Employment Opportunity (EEO); and

d. Reporting under the Occupational Safety and Health Act (OSHA).

Excluded are positions in which responsibility for actual contract negotiations with labor unions as the principal company representative is a significant aspect of the job, i.e., a responsibility which serves as a primary basis for qualification requirements and compensation.

Director of personnel jobs which meet the above definition are classified by level of work in accordance with the criteria shown in table C-2.

Attorneys

Performs consultation and advisory work and carries out the legal processes necessary to effect the rights, privileges, and obligations of the company. The work performed requires completion of law school with an

Table C-2. Criteria for matching directors of personnel by level

Number of employees in work force serviced	"Operations level" personnel program[1]		Number of employees in work force serviced	"Development level" personnel program[2]	
	"Type A" organization serviced[3]	"Type B" organization serviced[4]		"Type A" organization serviced[3]	"Type B" organization serviced[4]
250-750	I	II	250-750	II	III
1,000-5,000	II	III	1,000-5,000	III	IV
6,000-12,000	III	IV	6,000-12,000	IV	V
15,000-25,000	IV	V	15,000-25,000	V	-

[1] "Operations level" personnel program—director of personnel servicing an organizational segment (e.g., a plant) of a company where the basic personnel program policies, plans, objectives, etc., are established at company headquarters or some other higher level between the plant and the company headquarters level. The personnel director's responsibility is to put these into operation at the local level, in such a manner as to most effectively serve the local management needs.

[2] "Development level" personnel program—either:
(a) Director of personnel servicing an entire company (with or without subordinate establishments) where the personnel director plays an important role in establishment of basic personnel policies, plans, objectives, etc., for the company subject to policy direction and control from company officers; or (b) director of personnel servicing an intermediate organization below the company level, e.g., a division or a subsidiary to which a relatively complete delegation of personnel program planning and development responsibility is made. In this situation, only basic policy direction is given by the parent company and local officers. The director of personnel has essentially the same degree of latitude and responsibility for basic personnel policies, plans objectives, etc., as described above in (a).

[3] "Type A" organization serviced—most jobs serviced do not present particularly difficult or unusual recruitment, job evaluation, or training problems because the jobs consist of relatively easy-to-understand work processes, and an adequate labor supply is available. These conditions are most likely to be found in organizations in which the work force and organizational structure are relatively stable.

[4] "Type B" organization serviced—a substantial proportion of the jobs present difficult recruitment, job evaluation, or training problems because the jobs: Consist of hard-to-understand work processes (e.g., professional, scientific, administrative, or technical); have hard-to-match skill requirements; are in new or emerging occupations; or are extremely hard to fill. These conditions are most likely to be found in organizations in which the work force, organizational structure, work processes or functions, etc., are complicated or unstable.

NOTE: There are gaps between different degrees of all three elements used to determine job level matches. These gaps have been provided purposely to allow room for judgment in getting the best overall job level match for each job. Thus, a job which services a work force of 850 employees should be matched with level II if it is a personnel program operations level job where the nature of the organization serviced seems to fall slightly below the definition for type B. However, the same job should be matched with level I if the nature of the organization serviced clearly falls well within the definition for type A.

L.L.B. degree (or the equivalent) and admission to the bar. *Responsibilities or functions include one or more of the following or comparable duties:*

Preparing and reviewing various legal instruments and documents, such as contracts, leases, licenses, purchases, sales, real estate, etc.;

Acting as agent of the company in its transactions;

Examining material (e.g., advertisements, publications, etc.) for legal implications; advising officials of proposed legislation which might affect the company;

Applying for patents, copyrights, or registration of company's products, processes, devices, and trademarks;

Advising whether to initiate or defend lawsuits;

Conducting pretrial preparations; defending the company in lawsuits; and

Advising officials on tax matters, government regulations, and/or corporate rights.

Excluded from this definition are:

Patent work which requires professional training in addition to legal training (typically a degree in engineering or in a science);

Claims examining, claims investigating, or similar *work for which professional legal training and bar membership is not essential;* and

Attorneys, frequently titled "general counsel" (and their immediate full associates or deputies), who serve as company officers or the equivalent and are responsible for participating in the overall management and formulation of policy for the company in addition to directing its legal work. (The duties and responsibilities of such positions exceed level VI as described below.)

Attorney jobs which meet the above definition are to be classified in accordance with table C-3 and the definitions which follow.

Difficulty

D-1. Legal questions are characterized by: Facts that are well established; clearly applicable legal precedent; *and* matters not of substantial importance to the organization. (Usually relatively limited sums of money, e.g., a few thousand dollars, are involved.)

Examples of D-1 work:

Legal investigation, negotiation, and research preparatory to defending the organization in potential or actual lawsuits involving alleged negligence where the facts can be firmly established and there are precedent cases directly applicable to the situation.

Searching case reports, legal documents, periodicals, textbooks, and other legal references, and preparing draft opinions on employee compensation or benefit questions when there is a substantial amount of clearly applicable statutory, regulatory, and case material.

Table C-3. Criteria for matching attorneys by level

Level	Difficulty of legal work[1]	Responsibility of job[1]	Experience required
I	This is the entry level. The duties and responsibilities after initial orientation and training are those described in D-1 and R-1.		Completion of law school with an LL.B. or J.D. degree plus admission to the bar.
II	D-1 *or* D-2	R-2 R-1	Sufficient professional experience (at least 1 year, usually more) at the D-1 level to assure competence as an attorney.
III	D-2 *or* D-3	R-2 R-1	At least 1 year, usually more, of professional experience at the D-2 level.
IV	D-2 *or* D-3	R-3 R-2	Extensive professional experience at the D-2 or higher level.
V	D-3	R-3	Extensive professional experience at the D-3 level.
VI	D-3	R-4	Extensive professional experience at the D-3 and R-3 levels.

[1] D-1, -2, -3, and R-1, -2, -3, and -4 are explained in the text.

Drawing up contracts and other legal documents in connection with real property transactions requiring the development of detailed information but *not* involving serious questions regarding titles to property or other major factual or legal issues.

D-2. Legal work is regularly difficult by reason of one or more of the following: The absence of clear and directly applicable legal precedents; the different possible interpretations that can be placed on the facts, the laws, or the precedents involved; the substantial importance of the legal matters to the organization (e.g., sums as large as $100,000 are generally directly or indirectly involved); and the matter is being strongly pressed or contested in formal proceedings or in negotiations by the individuals, corporations, or government agencies involved.

Examples of D-2 work:

Advising on the legal implications of advertising representations when the facts supporting the representations and the applicable precedent cases are subject to different interpretations.

Reviewing and advising on the implications of new or revised laws affecting the organization.

Presenting the organization's defense in court in a negligence lawsuit which is strongly pressed by counsel for an organized group.

Providing legal counsel on tax questions complicated by the absence of precedent decisions that are directly applicable to the organization's situation.

D-3. Legal work is typically complex and difficult because of one or more of the following: The questions are unique and require a high order of original and creative legal endeavor for their solution; the questions require extensive research and analysis and the obtaining and evaluation of expert testimony regarding controversial issues in a scientific, financial, corporate organization, engineering, or other highly technical area; and the legal matter is of critical importance to the organization and is being vigorously pressed or contested (e.g., sums such as $1 million or more are generally directly or indirectly involved).

Examples of D-3 work:

Advising on the legal aspects and implications of Federal antitrust laws to projected greatly expanded marketing operations involving joint ventures with several other organizations.

Planning legal strategy and representing a utility company in rate or government franchise cases involving a geographic area including parts of all or several States.

Preparing and presenting a case before an appellate court where the case is highly important to the future operation of the organization and is vigorously contested by very distinguished (e.g., having a broad regional or national reputation) legal talent.

Serving as the principal counsel to the officers and staff of an insurance company on the legal problems in the sale, underwriting, and administration of group contracts involving nationwide or multistate coverages and laws.

Performing the principal legal work in a nonroutine, major revision of the company's charter or in effectuating new major financing steps.

Responsibility

R-1. Responsibility for final action is usually limited to matters covered by legal precedents and in which little deviation from standard practice is involved. Any decisions or actions having a significant bearing on the organization's business are reviewed. Is given guidance in the initial stages of assignment, e.g., in planning and organizing legal research and studies. Assignments are then carried out with moderate independence although guidance is generally available and is sought from time to time on problem points.

R-2. Usually works independently in investigating the facts, searching legal precedents, defining the legal and factual issues, drafting the necessary legal documents, and developing conclusions and recommendations. Decisions having an important bearing on the organization's business are reviewed. Receives information from supervisor regarding unusual circumstances or important policy considerations pertaining to a legal problem. If trials are involved, may receive guidance from a supervisor regarding presentation, line of approach, possible line of opposition to be encountered, etc. In the case of nonroutine written presentations, the final product is reviewed carefully, but primarily for overall soundness of legal reasoning and consistency with organization policy. Some, but not all, attorneys make assignments to one or more lower level attorneys, aides, or clerks.

R-3. Carries out assignments independently and makes final legal determinations in matters of substantial importance to the organization. Such determinations are subject to review only for consistency with company policy, possible precedent effect, and overall effectiveness. To carry out assignments, deals regularly with company officers and top-level management officials and confers or negotiates regularly with senior attorneys and officials in other companies or in government agencies on various aspects of assigned work. Receives little or no preliminary instruction on legal problems and a minimum of technical legal supervision. May assign and review work of a few attorneys, but this is not a primary responsibility.

R-4. Carries out assignments which entail independently planning investigations and negotiations on legal problems of the highest importance to the organization and developing completed briefs, opinions, contracts, or other legal products. To carry out assignments, represents the organization at conferences, hearings, or trials and personally confers and negotiates with top attorneys and top-ranking officials in private companies or in government agencies. On various aspects of assigned work, may give advice directly and personally to corporation officers and top-level managers, or may work through the general counsel of the company in advising officers. Generally receives no preliminary instructions on legal problems. On matters requiring the concentrated efforts of several attorneys or other specialists, is responsible for directing, coordinating, and reviewing the work of the attorneys involved.

OR

As a primary responsibility, directs the work of a staff of attorneys, one, but usually more, of whom regularly performs D-3 legal work. With respect to the work directed, gives advice directly to corporation officers and top managerial officers, or may give such advice through the general counsel. Receives guidance as to organization policy but no technical supervision or assistance except when requesting advice from, or briefing by, the general counsel on the overall approach to the most difficult, novel, or important legal questions. Usually reports to the general counsel or deputy.

Computer Programmers

Performs programming services for establishments or for outside organizations who may contract for services. Converts specifications (precise descriptions) about business or scientific problems into a sequence of detailed instructions to solve problems by electronic data processing (EDP) equipment, i.e., digital computers. Draws program flow charts to describe the processing of data and develops the precise steps and processing logic which, when entered into the computer in coded language (COBOL, FORTRAN, or other programming language), cause the manipulation of data to achieve desired results. Tests and corrects programs and prepares instructions for operators who control the computer during production runs. Modifies programs to increase operating efficiency or to respond to changes in work processes; maintains records to document program development and revisions.

At levels I, II, and III, some computer programmers *may also perform* programming analysis such as: Gathering facts from users to define their business or scientific problems and to investigate the feasibility of solving problems through new or modified computer programs; developing specifications for data inputs, flow, actions, decisions, and outputs; and participating on a continuing basis in the overall program planning along with other EDP personnel and users.

In contrast, at levels IV and V, some programming analysis *must be performed* as part of the programming assignment. The analysis duties are identified as a separate paragraph at levels I, II, III, and IV and are part of each alternative described at level V. However, the systems requirements are defined by systems analysts or scientists.

Excluded are:

a. Positions which require a bachelor's degree in a specific scientific field (other than computer science), such as an engineering, mathematics, physics, *or* chemistry degree; however, positions are potential matches where the required degree may be from *any of several possible scientific fields;*

b. Positions responsible for developing and modifying computer systems;

c. Computer programmers who perform level IV or V programming duties but who *perform no programming analysis;*

d. *Workers who primarily* analyze and evaluate problems concerning *computer equipment* or its selection or utilization;

e. Computer systems programmers or analysts who *primarily write programs or analyze problems concerning the system software,* e.g., operating systems, compilers, assemblers, system utility routines, etc., which provide basic services for the use of all programs and provide for the scheduling of the execution of programs; however, *positions matching this definition may develop a "total package"* which includes not only writing programs to process data but also *selecting* the computer equipment and system software required;

f. Employees who have significant responsibility for the management or supervision of workers (e.g., systems analysts) whose positions are *not* covered in this definition; or employees with significant responsibility for *other functions* such as computer operations, data entry, system software, etc.; and

g. Positions *not* requiring: (1) Three years of administrative, technical, or *substantive* clerical experience; (2) a bachelor's degree in any field; or (3) any equivalent combination of experience and education yielding basic skills in problem analysis and communication.

Positions are classified into levels based on the following definitions.

Computer Programmer I

At this trainee level, assignments are usually planned to develop basic programming skills because incumbents are typically inexperienced in applying such skills on the job. Assists higher level staff by performing elementary programming tasks which concern limited and simple data items and steps and which closely follow patterns of previous work done in the organization, e.g., drawing flow charts, writing operator instructions, or coding and testing routines to accumulate counts, tallies, or summaries. May perform routine programming assignments (as described in level II) under close supervision.

In addition, as training and to assist higher level staff, computer programmers *may perform* elementary factfinding concerning a specified work process, e.g., a file of clerical records which is treated as a unit (invoices, requisitions, or purchase orders, etc.); reports findings to higher level staff.

Receives classroom and/or on-the-job training in computer programming concepts, methods, and techniques and in the basic requirements of the subject matter area. May receive training in elementary factfinding. *Detailed,* step-by-step instructions are given for each task and any deviation must be authorized by a supervisor. Work is closely monitored in progress and reviewed in detail upon completion.

Computer Programmer II

At this level, initial assignments are designed to develop competence in applying established programming procedures to routine problems. Performs routine programming assignments that do not require skilled background experience but do require knowledge of established programming procedures and data processing requirements. Works according to clear-cut and complete specifications. The data are refined and the format of the final products is very similar to that of the input or is well defined when significantly different, i.e., there are few, if any, problems with interrelating varied records and outputs.

Maintains and modifies routine programs. Makes approved changes by amending program flow charts, developing detailed processing logic, and coding changes. Tests and documents modifications and writes operator instructions. May write routine new programs using prescribed specifications; may confer with EDP personnel to clarify procedures, processing logic, etc.

In addition and as continued training, computer programmers may evaluate simple interrelationships in the immediate programming area, e.g., whether a contemplated change in one part of a simple program would cause unwanted results in a related part; confers with user representatives to gain an understanding of the situation sufficient to formulate the needed change; implements the change upon approval of the supervisor or higher level staff. The incumbent is provided with charts, narrative descriptions of the functions performed, an approved statement of the product desired (e.g., a change in a local establishment report), and the inputs, outputs, and record formats.

Reviews objectives and assignment details with higher level staff to insure thorough understanding; uses judgment in selecting among authorized procedures and seeks assistance when guidelines are inadequate, significant deviations are proposed, or when unanticipated problems arise. Work is usually monitored in progress; all work is reviewed upon completion for accuracy and compliance with standards.

Computer Programmer III

As a fully qualified computer programmer, applies standard programming procedures and detailed knowledge of pertinent subject matter (e.g., work processes, governing rules, clerical procedures, etc.) in a programming area such as: A recordkeeping operation (supply, personnel and payroll, inventory, purchasing, insurance payments, depositor accounts, etc.); a well-defined statistical or scientific problem; or other standardized operation or problem. Works according to approved statements of requirements and detailed specifications. While the data are clear cut, related, and equally available, there may be substantial interrelationships of a variety of records, and several varied sequences or formats are usually produced. The programs developed or modified typically are linked to several other programs in that the output of one becomes the input for another. Recognizes probable interactions of other related programs with the assigned program(s) and is familiar with related system software and computer equipment. Solves conventional programming problems. (In small organizations, may maintain programs which concern or combine several operations, i.e., users, or develop programs where there is one primary user and the other gives input.)

Performs such duties as: Develops, modifies, and maintains assigned programs; designs and implements modifications to the interrelation of files and records within programs in consultation with higher level staff; monitors the operation of assigned programs and responds to problems by diagnosing and correcting errors in logic and coding; and implements and/or maintains assigned portions of a scientific programming project, applying established scientific programming techniques to well-defined mathematical, statistical, engineering, or other scientific problems usually requiring the translation of mathematical notation into processing logic and code. (Scientific programming includes assignments such as: Using predetermined physical laws expressed in mathematical terms to relate one set of data to another; the routine storage and retrieval of field test data; and using procedures for real-time command and control, scientific data reduction, signal processing, or similar areas.) Tests and documents work and writes and maintains operator instructions for assigned programs. Confers with other EDP personnel to obtain or provide factual data.

In addition, computer programmers may carry out factfinding and programming analysis of a single activity or routine problem, applying established procedures where the nature of the program, feasibility, computer equipment, and programming language have already been decided. May analyze present performance of the program and take action to correct deficiencies based on discussion with the user and consultation with and approval of the supervisor or higher level staff. May assist in the review and analysis of detailed program specifications and in program design to meet changes in work processes.

Works independently under specified objectives; applies judgment in devising program logic and in selecting and adapting standard programming procedures; resolves problems and deviations according to established practices; and obtains advice where precedents are unclear or not available. Completed work is reviewed for conformance to standards, timeliness, and efficiency. May guide or instruct lower level programmers; may supervise technicians and others who assist in specific assignments.

OR

Works on complex programs (as described in level IV) under close direction of higher level staff or supervisor. May *assist* higher level staff by independently performing less difficult tasks assigned, and performing more difficult tasks under close supervision.

Computer Programmer IV

Applies expertise in programming procedures to complex programs; recommends the redesign of programs, investigates and analyzes feasibility and program requirements, and develops programming specifications. Assigned programs typically affect a broad multiuser computer system which meets the data processing needs of a broad area (e.g., manufacturing, logistics planning, finance management, human resources, material management, etc.) or a computer system for a project in engineering, research, accounting, statistics, etc. Plans the full range of programming actions to produce several interrelated but different products from numerous and diverse data elements which are usually from different sources; solves difficult programming problems. Uses knowledge of pertinent system software, computer equipment, work processes, regulations, and management practices.

Performs such duties as: Develops, modifies, and maintains complex programs; designs and implements the interrelation of files and records within programs which will effectively fit into the overall design of the project; working with problems or concepts, develops programs for the solution to major scientific computational problems requiring the analysis and development of logical or mathematical descriptions of functions to be programmed; and develops occasional special programs, e.g., a critical path analysis program to assist in managing a special project. Tests, documents, and writes operating instructions for all work. Confers with other EDP personnel to secure information, investigate and resolve problems, and coordinate work efforts.

In addition, performs such programming analysis as: Investigates the feasibility of alternate program design approaches to determine the best balanced solution, e.g., one that will best satisfy immediate user needs, facilitate subsequent modification, and conserve resources; on typical maintenance projects and smaller scale, limited new projects, assists user personnel in defining problems or needs and determines how the work should be organized, the necessary files and records, and their interrelation within the program; and on large or more complicated projects, usually participates as a team member along with other EDP personnel and users and is typically assigned a portion of the project.

Works independently under overall objectives and direction, apprising the supervisor about progress and unusual complications. Modifies and adapts precedent solutions and proven approaches. Guidelines include constraints imposed by the related programs with which the incumbent's programs must be meshed. Completed work is reviewed for timeliness, compatibility with other work, and effectiveness in meeting requirements. May function as team leader or supervise a few lower level programmers or technicians on assigned work.

Computer Programmer V

At level V, workers are typically either supervisors, team leaders, staff specialists, or consultants. Some programming analysis is included as a part of the programming assignment. Supervision and review are similar to level IV.

Typical duties and responsibilities. One or more of the following:

1. *In a supervisory capacity,* plans, develops, coordinates, and directs a large and important programming project (finance, manufacturing, sales/marketing, human resources, or other broad area) or a number of small programming projects with complex features. A substantial portion of the work supervised (usually two to three workers) is comparable to that described for level IV. Supervises, coordinates, and reviews the work of a small staff, normally not more than 15 programmers and technicians; estimates personnel needs and schedules, assigns, and reviews work to meet completion date. These day-to-day supervisors evaluate performance, resolve complaints, and make recommendations on hiring and firing. They do not make final decisions on curtailing projects, reorganizing, or reallocating resources.
2. *As team leader, staff specialist, or consultant,* defines complex scientific problems (e.g., computational) or other highly complex programming problems (e.g., generating overall forecasts, projections, or other new data fields widely different from the source data or untried at the scale proposed) and directs the development of computer programs for their solution; or designs improvements in complex programs where existing precedents provide little guidance, such as an interrelated group of mathematical/statistical programs which support health insurance, natural resources, marketing trends, or other research activities. In conjunction with users (scientists or specialists), defines major problems in the subject-matter area. Contacts coworkers and user personnel at various locations to plan and coordinate project and gather data; devises ways to obtain data not previously available; and arbitrates differences between various program users when conflicting requirements arise. May perform simulation studies to determine effects of changes in computer equipment or system software or may assess the feasibility and soundness of proposed programming projects which are novel and complex. Typically, develops programming techniques and procedures where few precedents exist. May be assisted on projects by other programmers or technicians.

Computer Systems Analysts

Analyzes business or scientific problems for resolution through electronic data processing. Gathers information from users, defines work problems, and, if feasible, designs a system of computer programs and procedures to resolve the problems. Develops complete specifications to enable computer programmers to prepare required programs: Analyzes subject-matter operations to be automated; specifies number and types of records, files, and documents to be used and outputs to be produced; prepares work diagrams and data flow charts; coordinates tests of the system and participates in trial runs of new and revised systems; and recommends computer equipment changes to obtain more effective operations. May also write the computer programs.

Excluded are:

(a) Trainees who receive detailed directives and work plans, select authorized procedures for use in specific situations, and seek assistance for deviations and problems;

(b) Positions which require a bachelor's degree in a specific scientific field (other than computer science), such as an engineering, mathematics, physics, *or* chemistry degree; however, positions are potential matches where the required degree may be from *any* of several possible scientific fields;

(c) Computer programmers who write computer programs and solve user problems not requiring systems modification;

(d) Workers who primarily analyze and evaluate problems concerning *computer equipment* or its selection or utilization; and

(e) Computer systems programmers or analysts who primarily write programs or analyze problems concerning the system software, e.g., operating systems, compilers, assemblers, system utility routines, etc., which provide basic services for the use of all programs and provide for the scheduling of the execution of programs; however, positions matching this definition may develop a "total package" which includes not only analyzing work problems to be processed but also selecting the computer equipment and system software required.

Positions are classified into levels on the basis of the following definitions.

Computer Systems Analyst I

At this level, *initial assignments* are designed to *expand* practical experience in applying systems analysis techniques and procedures. Provides *several phases* of the required systems analysis where the nature of the system is predetermined. Uses established factfinding approaches, knowledge of pertinent work processes and procedures, and familiarity with related computer programming practices, system software, and computer equipment.

Carries out factfinding and analysis as assigned, usually of a single activity or a routine problem; applies established procedures where the nature of the system, feasibility, computer equipment, and programming language have already been decided; may assist a higher level systems analyst by preparing the detailed specifications required by computer programmers from information developed by the higher level analyst; may research routine user problems and solve them by modifying the existing system when the solutions follow clear precedents. When costs and deadline estimates are required, results receive close review.

The supervisor defines objectives, priorities, and deadlines. Incumbents work independently; adapt guides to specific situations; resolve problems and deviations according to established practices; and obtain advice where precedents are unclear or not available. Completed work is reviewed for conformance to requirements, timeliness, and efficiency. May supervise technicians and others who assist in specific assignments.

Computer Systems Analyst II

Applies systems analysis and design skills in an area such as a recordkeeping or scientific operation. A system of several varied sequences or formats is usually developed, e.g., develops systems for maintaining depositor accounts in a bank, maintaining accounts receivable in a retail establishment, maintaining inventory accounts in a manufacturing or wholesale establishment, or processing a limited problem in a scientific project. Requires competence in most phases of systems analysis and knowledge of pertinent system software and computer equipment and of the work processes, applicable regulations, workload, and practices of the assigned subject-matter area. Recognizes probable interactions of related computer systems and predicts impact of a change in assigned system.

Reviews proposals which consist of objectives, scope, and user expectations; gathers facts, analyzes data, and prepares a project synopsis which compares alternatives in terms of cost, time, availability of equipment and personnel, and recommends a course of action; and, upon approval of synopsis, prepares specifications for development of computer programs. Determines and resolves data processing problems and coordinates the work with programmers, users, etc.; orients user personnel on new or changed procedures. May conduct special projects such as data element and code standardization throughout a broad system, working under specific objectives and bringing to the attention of the supervisor any unusual problems or controversies.

Works independently under overall project objectives and requirements; apprises supervisor about progress and unusual complications. Guidelines usually include existing systems and the constraints imposed by related systems with which the incumbent's work must be meshed. Adapts design approaches successfully used in precedent systems. Completed work is reviewed for timeliness, compatibility with other work, and effectiveness in meeting requirements. May provide functional direction to lower level assistants on assigned work.

OR

Works on a segment of a complex data processing scheme or broad system, as described for computer systems analysts, level III. Works independently on routine assignments and receives instructions and guidance on complex assignments. Work is reviewed for accuracy of judgment, compliance with instructions, and to insure proper alignment with overall system.

Computer Systems Analyst III

Applies systems analysis and design techniques to complex computer systems in a *broad* area such as manufacturing; finance management; engineering, accounting, or statistics; logistics planning; material management; etc. Usually, there are multiple users of the system; however, there may be complex single-user systems, e.g., for engineering or research projects. Requires competence in all phases of available systems analysis techniques, concepts, and methods and knowledge of available systems software, computer equipment, and the regulations, structure, techniques, and management practices of one or more subject-matter areas. Since *input data usually come from diverse sources,* is responsible for recognizing probable conflicts and integrating diverse data elements and sources. Produces innovative solutions for a variety of complex problems.

Maintains and modifies complex systems or develops new subsystems such as an integrated production scheduling, inventory control, cost analysis, and sales analysis record in which every item of each type is automatically processed through the full system of records. Guides users in formulating requirements; advises on alternatives and on the implications of new or revised data processing systems; analyzes resulting user project proposals, identifies omissions and errors in requirements, and conducts feasibility studies; recommends optimum approach and develops system design for approved projects. Interprets information and informally arbitrates between system users when conflicts exist. May serve as lead analyst in a design subgroup, directing and integrating the work of one or two lower level analysts, each responsible for several programs.

Supervision and nature of review are similar to level II; existing systems provide precedents for the operation of new subsystems.

Computer Systems Analyst IV

Applies expert systems analysis and design techniques to complex *systems development* in a specialized design area and/or resolves unique or unyielding problems in existing complex systems by *applying new technology.* Work requires a broad knowledge of data sources and flow, interactions of existing complex systems in the organization, and the capabilities and limitations of the systems software and computer equipment. Objectives and overall requirements are defined in organization EDP policies and standards; the primary constraints typically are those imposed by the need for compatibility with existing systems or processes. Supervision and nature of review are similar to levels II and III.

Typical duties and responsibilities. One or more of the following:

1. As team project leader, provides systems design *in a specialized and highly complex design area,* e.g., interrelated business statistics and/or projections, scientific systems, mathematical models, or similar unprecedented computer systems. *Establishes the framework of new computer systems* from feasibility studies to postimplementation evaluation. Devises new sources of data and develops new approaches and techniques for use by others. May serve as technical authority for a design area. At least one or two team members perform work at level III; one or two team members may also perform work as a level IV staff specialist or consultant as described below.
2. As staff specialist or consultant, with expertise in a specialty area (e.g., data security, telecommunications, systems analysis techniques, EDP standards development, etc.), plans and conducts analyses of unique or unyielding problems in a broad system. Identifies problems and specific issues in assigned area and prepares overall project recommendations from an EDP standpoint, including feasible advancements in EDP technology; upon acceptance, determines a design strategy that anticipates directions of change; designs and monitors necessary testing and implementation plans. Performs work such as: Studies broad areas of projected work processes which cut across established organization EDP systems; conducts continuing review of computer technological developments applicable to systems design and prepares long-range forecasts; develops EDP standards where new and improved approaches are needed; or develops recommendations for a management information system where new concepts are required.

Computer Systems Analyst V

As a top technical expert, develops broad unprecedented computer systems and/or conducts critical studies central to the success of large organizations having extensive technical or highly diversified computer requirements. Considers such requirements as broad company policy, and the diverse user needs of several organization levels and locations. Works under general administrative direction.

Typical duties and responsibilities. One or more the following:

1. As team or project leader, guides the development of broad unprecedented computer systems. The information requirements are complex and voluminous. Devises completely new ways to locate and develop data sources; establishes new factors and criteria for making subject-matter decisions. Coordinates fact-finding, analysis, and design of the system and applies the most recent developments in data processing technology and computer equipment. Guidelines consist of state-of-the-art technology and general organization policy. *At least one team member performs work at level IV.*
2. As staff specialist or consultant, is a recognized leader and authority in a large organization (as defined above). Performs at least *two* of the following: (a) Has overall responsibility for evaluating the significance of technological advancement and developing EDP standards where new and improved approaches are needed, e.g., programming techniques; (b) conceives and plans exploratory investigations critical to the overall organization where useful

precedents do not exist and new concepts are required, e.g., develops recommendations regarding a comprehensive management information system; or (c) evaluates existing EDP organizational policy for effectiveness, devising and formulating changes in the organization's position on broad policy issues. May be assisted on individual projects by other analysts.

COMPUTER SYSTEMS ANALYST SUPERVISOR/MANAGER

Supervises three or more employees, two of whom perform systems analysis. Work requires substantial and recurring use of systems analysis skills in directing staff. May also supervise programmers and related clerical and technical support personnel.

Excluded are:

(a) Positions also having significant responsibility for the management or supervision of functional areas (e.g., system software development, data entry, or computer operations) *not* related to the Computer Systems Analyst and Computer Programmer definitions.

(b) Supervisory positions having base levels below Computer Systems Analyst II or Computer Programmer IV.

(c) Managers who supervise two or more subordinates performing at Computer Systems Analyst Supervisor/Manager level IV.

Supervisory jobs are matched at 1 of 4 levels according to two factors: (a) Base level of work supervised, and (b) level of supervision. Table C-4 indicates the level of the supervisor for each combination of factors.

Base Level of Work

The base level of work is that level of *nonsupervisory* work under the direct or indirect supervision of the supervisor/manager which (when added to the nonsupervisory levels above it) represents at least 25 percent of the total nonsupervisory, nonclerical staff and at least two of the full-time positions supervised.

To determine the base level of nonsupervisory, nonclerical work: (1) Positions are arrayed by level of difficulty; (2) the number of workers in each position is determined; and (3) the highest level is determined that has at least 25 percent of the total nonsupervisory, nonclerical staff accumulated from itself and levels above itself.

Level of Supervision

Supervisors and managers are matched at 1 of the 3 LS levels below best describing their supervisory responsibility.

LS-1. Plans, coordinates, and evaluates the work of a small staff, normally not more than 15 programmers, systems analysts, and technicians; estimates personnel needs and schedules, assigns and reviews work to meet completion date; interviews candidates for own unit and recommends hires, promotions, or reassignments; resolves complaints and refers group grievances and more serious unresolved complaints to higher level supervisors; and may reprimand employees.

LS-2. Directs a sizable staff (normally 15-30 employees), typically divided into subunits controlled by subordinate supervisors; advises higher level management of work problems of own unit and the impact on broader programs; collaborates with heads of other units to negotiate and/or coordinate work changes; makes decisions on work or training problems presented by subordinate supervisors; evaluates subordinate supervisors and reviews their evaluations of other employees; selects nonsupervisors (higher level approval is virtually assured) and recommends supervisory selections; and hears group grievances and serious or unresolved complaints. May shift resources among projects and perform long-range budget planning.

NOTE: In *rare instances,* supervisory positions responsible for directing a sizable staff (e.g., 20-30 employees) may not have subordinate supervisors, but *have all other LS-2 responsibilities.* Such positions are matched to LS-2.

LS-3. Directs two subordinate supervisory levels, and the work force managed typically includes substantially more than 30 employees. Makes major decisions and recommendations which have a direct, important, and substantial effect on own organization and work. Performs *at least three* of the following:

Decides what programs and projects should be initiated, dropped, expanded, or curtailed;

Determines long-range plans in response to program changes, evaluates program goals, and redefines objectives;

Determines changes to be made in organizational structure, delegation of authority, coordination of units, etc.;

Decides what compromises to make in operations in view of public relations implications and need for support from various groups;

Decides on the means to substantially reduce operating costs without impairing overall operations; justifies major equipment expenditures; and

Resolves differences between key subordinate officials; decides, or significantly affects final decisions, on personnel actions for supervisors and other key officials.

Table C-4. Criteria for matching computer systems analyst supervisors/managers

Base level of nonsupervisory job(s)		Supervisor/manager level		
		Level of supervision		
Matched in the computer programmers definition	Matched in the computer systems analysts definition	LS-1	LS-2	LS-3
IV	II	I	II	III
V	III	II	III	IV
–	IV	III	IV	Exclude
–	V	IV	Exclude	Exclude

BUYERS

Purchases materials, supplies, equipment, and services (e.g., utilities, maintenance, and repair). In some instances, items are of types that must be specially designed, produced, or modified by the vendor in accordance with drawings or engineering specifications.

Solicits bids, analyzes quotations received, and selects or recommends supplier. May interview prospective vendors. Purchases items and services at the most favorable price consistent with quality, quantity, specification requirements, and other factors. Prepares or supervises preparation of purchase orders from requisitions. May expedite delivery and visit vendors' offices and plants.

Normally, purchases are unreviewed when they are consistent with past experience and are in conformance with established rules and policies. Proposed purchase transactions that deviate from the usual or from past experience in terms of prices, quality of items, quantities, etc., or that may set precedents for future purchases are reviewed by higher authority prior to final action.

In addition to work described above, some (but not all) buyers direct the work of one or a few clerks who perform routine aspects of the work. As a secondary and subsidiary duty, some buyers may also sell or dispose of surplus, salvage, or used materials, equipment, or supplies.

Note: Some buyers are responsible for the purchasing of a variety of items and materials. When the variety includes items and work described at more than one of the following levels, the position should be considered to equal the highest level that characterizes at least a substantial portion of the buyer's time.

Excluded are:

a. Buyers of items for direct sale, either wholesale or retail;

b. Brokers and dealers buying for clients or for investment purposes;

c. Positions that specifically require professional education and qualifications in a physical science or in engineering (e.g., chemist, mechanical engineer);

d. Buyers who specialize in purchasing a single or a few related items of highly variable quality such as raw cotton or wool, tobacco, cattle, or leather for shoe uppers, etc. Expert personal knowledge of the item is required to judge the relative value of the goods offered, and to decide the quantity, quality, and price of each purchase in terms of its probable effect on the organization's profit and competitive status;

e. Buyers whose principal responsibility is the supervision of a purchasing program;

f. Persons predominantly concerned with contract or subcontract administration;

g. Persons whose major duties consist of ordering, reordering, or requisitioning items under existing contracts;

h. Positions restricted to clerical functions or to purchase expediting work; and

i. Positions not requiring: (1) Three years of administrative, technical, or substantive clerical experience; (2) a bachelor's degree in any field; or (3) any equivalent combination of experience and education yielding basic skills in problem analysis and communication.

Buyer I

Purchases "off-the-shelf" types of readily available, commonly used materials, supplies, tools, furniture, services, etc.

Transactions usually involve local retailers, wholesalers, jobbers, and manufacturers' sales representatives.

Quantities purchased are generally small amounts, e.g., those available from local sources.

Examples of items purchased include: Common stationery and office supplies; standard types of office furniture and fixtures; standard nuts, bolts, and screws; janitorial and common building maintenance supplies; or common utility services or office machine repair services.

Buyer II

Purchases "off-the-shelf" types of standard, generally available technical items, materials, and services. Transactions may involve occasional modification of standard and common usage items, materials, and services, and include a few stipulations about unusual packing, marking, shipping, etc.

Transactions usually involve dealing directly with manufacturers, distributors, jobbers, etc.

Quantities of items and materials purchased may be relatively large, particularly in the case of contracts for continuing supply over a period of time.

May be responsible for locating or promoting possible new sources of supply. Usually is expected to keep abreast of market trends, changes in business practices in the assigned markets, new or altered types of materials entering the market, etc.

Examples of items purchased include: Standard industrial types of handtools; gloves and safety equipment; standard electronic parts, components, and component test instruments; electric motors; gasoline service station equipment; PBX or other specialized telephone services; special-purpose printing services; and routine purchases of common raw materials such as standard grades and sizes of steel bars, rods, and angles.

Also included at this level are buyers of materials of the types described for buyer I when the quantities purchased are so large that local sources of supply are generally inadequate and the buyer must deal directly with manufacturers on a broader-than-local scale.

Buyer III

Purchases items, materials, or services of a technical and specialized nature. The items, while of a common general type, are usually made, altered, or customized to meet the user's specific needs and specifications.

Transactions usually require dealing with manufacturers. The number of potential vendors is likely to be small and price differentials often reflect important factors (quality, delivery dates and places, etc.) that are difficult to evaluate.

The quantities purchased of any item or service may be large.

Many of the purchases involve one or more of such complications as: Specifications that detail, in technical terms, the required physical, chemical, electrical, or other comparable properties; special testing prior to acceptance; grouping of items for lot bidding and awards; specialized processing, packing, or packaging requirements; export packs; overseas port differentials; etc.

Is expected to keep abreast of market and product developments. May be required to locate new sources of supply.

Some positions may involve *assisting* in the training or supervising of lower level buyers or clerks.

Examples of items purchased include: Casting special extruded shapes of normal size and material special formula paints; electric motors of special shap or speeds; production equipment; special packaging o items; and raw materials in substantial quantities o with special characteristics.

Buyer IV

Purchases highly complex and technical items materials, or services, usually those specially designe and manufactured exclusively for the purchaser.

Transactions require dealing with manufacturers and often involve persuading potential vendors to undertake the manufacturing of custom-designed items according to complex and rigid specifications.

Quantities of items and materials purchased are often large in order to satisfy the requirements for an entire large organization for an extended period of time. Complex schedules of delivery are often involved. Buyer determines appropriate quantities to be contracted for at any given period of time.

Transactions are often complicated by the presence of one or more such matters as inclusion of: Requirements for spare parts, preproduction samples and testing, or technical literature; or patent and royalty provisions.

Keeps abreast of market and product developments. Develops new sources of supply.

In addition to the work described above, a few positions may also require supervision over a few lower level buyers or clerks. (No position is included in this level *solely* because supervisory duties are performed.)

Examples of items purchased include: Special-purpose high-cost machine tools and production facilities; specialized condensers, boilers, and turbines; raw materials of critically important characteristics or quality; and parts, subassemblies, components, etc., specially designed and made to order (e.g., communications equipment for installation in aircraft being manufactured; component assemblies for missiles and rockets; and motor vehicle frames).

NOTE: Excluded are buying positions above level IV. Some buyers above level IV make purchases in such unusually large quantities that they can affect the market price of a commodity or produce other significant effects on the industry or trade concerned. Others may purchase items of either (1) extraordinary technical complexity, e.g., involving the outermost limits of science or engineering, or (2) unusually high individual or unit value. Such buyers often persuade suppliers to expand their plants or convert facilities to the production of new items or services. These types of buying functions are often performed by program managers or company officials who have primary responsibilities other than buying.

Chemists and Engineers

CHEMIST

Performs professional work in research, development, interpretation, and analysis to determine the composition, molecular structure, and properties of substances; to develop or investigate new materials and processes; and to investigate the transformations which substances undergo. Work typically requires a B.S. degree in chemistry or the equivalent in appropriate and substantial college level study of chemistry plus experience.

Chemist I

General characteristics. This is the entry level of professional work requiring a bachelor's degree in chemistry and no experience, or the equivalent of a degree in appropriate education and experience. Performs assignments designed to develop professional capabilities and to provide experience in the application of training in chemistry as it relates to the company's programs. May also receive formal classroom or seminar-type training. (Terminal positions are excluded.)

Direction received. Works under close supervision. Receives specific and detailed instructions as to required tasks and results expected. Work is checked during progress, and is reviewed for accuracy upon completion.

Typical duties and responsibilities. Performs a variety of routine tasks that are planned to provide experience and familiarization with the chemistry staff, methods, practices, and programs of the company. The work includes a variety of routine qualitative and quantitative analyses; physical tests to determine properties such as viscosity, tensile strength, and melting point; and assisting more experienced chemists to gain additional knowledge through personal observation and discussion.

Responsibility for direction of others. Usually none.

Chemist II

General characteristics. At this continuing developmental level, performs routine chemical work requiring selection and application of general and specialized methods, techniques, and instruments commonly used in the laboratory, and the ability to carry out instructions when less common or proposed methods or procedures are necessary. Requires work experience acquired in an entry level position, or appropriate graduate level study. For training and developmental purposes, assignments may include some work that is typical of a higher level. (Terminal positions are excluded.)

Direction received. Supervisor establishes the nature and extent of analysis required, specifies methods and criteria on new types of assignments, and reviews work for thoroughness of application of methods and accuracy of results.

Typical duties and responsibilities. Carries out a wide variety of standardized methods, tests, and procedures. In accordance with specific instructions, may carry out proposed and less common ones. Is expected to detect problems in using standardized procedures because of the condition of the sample, difficulties with the equipment, etc. Recommends modifications of procedures, e.g., extending or curtailing the analysis or using alternate procedures, based on knowledge of the problem and pertinent available literature. Conducts specified phases of research projects as an assistant to an experienced chemist.

Responsibility for direction of others. May be assisted by a few aides or technicians.

Chemist III

General characteristics. Performs a broad range of chemical tests and procedures utilized in the laboratory, using judgment in the independent evaluation, selection, and adaptation of standard methods and techniques. May carry through a complete series of tests on a product in its different process stages. Some assignments require a specialized knowledge of one or two common categories of related substances. Performance at this level requires developmental experience in a professional position, or equivalent graduate level education.

Direction received. On routine work, supervision is very general. Assistance is furnished on unusual problems and work is reviewed for application of sound professional judgment.

Typical duties and responsibilites. In accordance with instructions as to the nature of the problem, selects standard methods, tests, or procedures; when necessary, develops or works out alternative or modified methods with supervisor's concurrence. Assists in research by analyzing samples or testing new procedures that require specialized training because (a) standard methods are inapplicable, (b) analytical findings must be interpreted in terms of compliance or noncompliance with standards, or (c) specialized and advanced equipment and techniques must be adapted.

Responsibility for direction of others. May supervise or coordinate the work of a few technicians or aides, and be assisted by lower level chemists.

Chemist IV

General characteristics. As a fully competent chemist in all conventional aspects of the subject matter or the functional areas of the assignments, plans and conducts work requiring (a) mastery of specialized techniques or ingenuity in selecting and evaluating approaches to unforeseen or novel problems, and (b) ability to apply a research approach to the solution of a wide variety of problems and to assimilate the details and significance of chemical and physical analyses, procedures, and tests. Requires sufficient professional experience to assure competence as a fully trained worker; or, for positions primarily of a research nature, completion of all requirements for a doctoral degree may be substituted for experience.

Direction received. Independently performs most assignments with instructions as to the general results expected. Receives technical guidance on unusual or complex problems and supervisory approval on proposed plans for projects.

Typical duties and responsibilities. Conducts laboratory assignments requiring the determination and evaluation of alternative procedures and the sequence of performing them. Performs complex, exacting, unusual analytical assignments requiring specialized knowledge of techniques or products. Interprets results, prepares reports, and may provide technical advice in specialized area.

Responsibility for direction of others. May supervise a small staff of chemists and technicians.

Chemist V

General characteristics. Participates in planning laboratory programs on the basis of specialized knowledge of problems and methods and probable value of results. May serve as an expert in a narrow specialty (e.g., class of chemical compounds, or a class of products), making recommendations and conclusions which serve as the basis for undertaking or rejecting important projects. Development of the knowledge and expertise required for this level of work usually reflects progressive experience through chemist IV.

Direction received. Supervision and guidance relate largely to overall objectives, critical issues, new concepts, and policy matters. Consults with supervisor concerning unusual problems and developments.

Typical duties and responsibilities. One or both of the following: (1) In a supervisory capacity, plans, organizes, and directs assigned laboratory programs. Independently defines scope and critical elements of the projects and selects approaches to be taken. A substantial portion of the work supervised is comparable to that described for chemist IV. (2) As individual researcher or worker, carries out project requiring development of new or highly modified scientific techniques and procedures, extensive knowledge of specialty, and knowledge of related scientific fields.

Responsibility for direction of others. Supervises, coordinates, and reviews the work of a small staff of chemists and technicians engaged in varied research and development projects, or a larger group performing routine analytical work. Estimates personnel needs and schedules and assigns work to meet completion date. Or, as individual researcher or worker, may be assisted on projects by other chemists or technicians.

Chemist VI

General characteristics. Performs work requiring leadership and expert knowledge in a specialized field, product, or process. Formulates and conducts a systematic attack on a problem area of considerable scope and complexity which must be approached through a series of complete and conceptually related studies, or a number of projects of lesser scope. The problems are complex because they are difficult to define and require unconventional or novel approaches or have other difficult features. Maintains liaison with individuals and units within and outside the organization, with responsibility for acting independently on technical matters pertaining to the field. Work at this level usually requires extensive progressive experience including work comparable to chemist V.

Direction received. Supervision received is essentially administrative, with assignments given in terms of broad, general objectives and limits.

Typical duties and responsibilities. One or both of the following: (1) In a supervisory capacity, (a) plans, develops, coordinates, and directs a number of large and important projects or a project of major scope and importance; or (b) is responsible for the entire chemical program of a company, when the program is of limited complexity and scope. Activities supervised are of such a scope that they require a few (three to five) subordinate supervisors or team leaders with at least one in a position comparable to level V. (2) As individual researcher or worker, determines, conceives, plans, and conducts projects of major importance to the company. Applies a high degree of originality and ingenuity in adapting techniques into original combinations and configurations. May serve as a consultant to other chemists in specialty.

Responsibility for direction of others. Plans, organizes, and supervises the work of a staff of chemists and technicians. Evaluates progress of the staff and results obtained, and recommends major changes to achieve overall objectives. Or, as individual worker or researcher, may be assisted on individual projects by other chemists or technicians.

Chemist VII

General characteristics. Makes decisions and recommendations that are recognized as authoritative and have an important impact on extensive chemical activities. Initiates and maintains extensive contacts with key chemists and officials of other organizations and companies. Requires skill in persuasion and negotiation of critical issues. At this level, individuals will have demonstrated creativity, foresight, and mature judgment in anticipating and solving unprecedented chemical problems, determining program objectives and requirements, organizing programs and projects, and developing standards and guides for diverse chemical activities.

Direction received. Receives general administrative direction.

Typical duties and responsibilities. One or both of the following: (1) In a supervisory capacity, is responsible for (a) an important segment of a chemical program of a company with extensive and diversified scientific requirements, or (b) the entire chemical program of a company where the program is more limited in scope. The overall chemical program contains critical problems the solution of which requires major technological advances and opens the way for extensive related development. Makes authoritative technical recommendations concerning the scientific objectives and levels of work which will be most profitable in light of company requirements and scientific and industrial trends and developments. Recommends facilities, personnel, and funds required. (2) As individual researcher and consultant, selects problems for research to further the company's objectives. Conceives and plans investigations in which the phenomena and principles are not adequately understood, and where few or contradictory scientific precedents or results are available for reference. Outstanding creativity and mature judgment are required to devise hypotheses and techniques of experimentation and to interpret results. As a leader and authority in the company, in a broad area of specialization, or in a narrow but intensely specialized one, advises the head of a large laboratory or company officials on complex aspects of extremely broad and important programs. Has responsibility for exploring, evaluating, and justifying proposed and current programs and projects and furnishing advice on unusually complex and novel problems in the specialty field. Typically will have contributed innovations (e.g., techniques, products, procedures) which are regarded as significant advances in the field.

Responsibility for direction of others. Directs several subordinate supervisors or team leaders, some of whom are in positions comparable to chemist VI; or, as individual researcher and consultant, may be assisted on individual projects by other chemists and technicians.

Chemist VIII

General characteristics. Makes decisions and recommendations that are authoritative and have a far-reaching impact on extensive chemical and related activities of the company. Negotiates critical and controversial issues with top level chemists and officers of other organizations and companies. Individuals at this level have demonstrated a high degree of creativity, foresight, and mature judgment in planning, organizing, and guiding extensive chemical programs and activities of outstanding novelty and importance.

Direction received. Receives general administrative direction.

Typical duties and responsibilities. One or both of the following: (1) In a supervisory capacity, is responsible for (a) an important segment of a very extensive and highly diversified chemical program of a company; or (b) the entire chemical program of a company when the program is of moderate scope. The programs are of such complexity and scope that they are of critical importance to overall objectives, include problems of extraordinary difficulty that often have resisted solution, and consist of several segments requiring subordinate supervisors. Is responsible for deciding the kind and extent of chemical and related programs needed to accomplish the objectives of the company, for choosing the scientific approaches, for planning and organizing facilities and programs, and for interpreting results. (2) As individual researcher and consultant, formulates and guides the attack on problems of exceptional difficulty and marked importance to the company and/or industry.

Problems are characterized by the lack of scientific precedents and source materials, or the lack of success of prior research and analysis so that their solution would represent an advance of great significance and importance. Performs advisory and consulting work for the company as a recognized authority for broad program areas of considerable novelty and importance. Has made contributions such as new products or techniques, development of processes, etc., which are regarded as major advances in the field.

Responsibility for direction of others. Supervises several subordinate supervisors or team leaders, some of whose positions are comparable to chemist VII, or individual researchers, some of whose positions are comparable to chemist VII and sometimes chemist VIII. As an individual researcher and consultant, may be assisted on individual projects by other chemists or technicians.

Note: Individuals in charge of a company's chemical program may match any of several of the survey job levels, depending on the size and complexity of chemical programs. *Excluded* from the definition are: (1) Chemists in charge of programs so extensive and complex (e.g., consisting of highly diversified or unusually novel products and procedures) that one or more subordinate supervisory chemists are performing at level VIII; (2) individuals whose decisions have direct and substantial effect on setting policy for the organization (included, however, are supervisors deciding the "kind and extent of chemical program" within broad guidelines set at higher levels); and (3) individual researchers and consultants who are recognized as national and/or international authorities and scientific leaders in very broad areas of scientific interest and investigation.

ENGINEER

Performs professional work in research, development, design, testing, analysis, production, construction, maintenance, operation, planning, survey, estimating, application, or standardization of engineering facilities, systems, structures, processes, equipment, devices, or materials, requiring knowledge of the science and art by which materials, natural resources, and power are made useful. Work typically requires a B.S. degree in engineering or the equivalent in combined education and experience. *(Excluded* are: Safety engineers, industrial engineers, quality control engineers, sales engineers, and engineers whose primary responsibility is to be in charge of nonprofessional maintenance work.)

Engineer I

General characteristics. This is the entry level of professional work requiring a bachelor's degree in engineering and no experience, or the equivalent of a degree in appropriate education and experience. Performs assignments designed to develop professional work knowledge and abilities. May also receive formal classroom or seminar-type training. (Terminal positions are excluded.)

Direction received. Works under close supervision. Receives specific and detailed instructions as to required tasks and results expected. Work is checked during progress and is reviewed for accuracy upon completion.

Typical duties and responsibilities. Performs a variety of routine tasks that are planned to provide experience and familiarization with the engineering staff, methods, practices, and programs of the company.

Responsibility for direction of others. Usually none.

Engineer II

General characteristics. At this continuing developmental level, performs routine engineering work requiring application of standard techniques, procedures, and criteria in carrying out a sequence of related engineering tasks. Limited exercise of judgment is required on details of work and in making preliminary selections and adaptations of engineering alternatives. Requires work experience acquired in an entry level position, or appropriate graduate level study. For training and developmental purposes, assignments may include some work that is typical of a higher level. (Terminal positions are excluded.)

Direction received. Supervisor screens assignments for unusual or difficult problems and selects techniques and procedures to be applied on nonroutine work. Receives close supervision on new aspects of assignments.

Typical duties and responsibilities. Using prescribed methods, performs specific and limited portions of a broader assignment of an experienced engineer. Applies standard practices and techniques in specific situations, adjusts and correlates data, recognizes discrepancies in results, and follows operations through a series of related detailed steps or processes.

Responsibility for direction of others. May be assisted by a few aides or technicians.

Engineer III

General characteristics. Independently evaluates, selects, and applies standard engineering techniques, procedures, and criteria, using judgment in making minor adaptations and modifications. Assignments have clear and specified objectives and require the investigation of a limited number of variables. Performance at this level requires developmental experience in a professional position, or equivalent graduate level education.

Direction received. Receives instructions on specific assignment objectives, complex features, and possible solutions. Assistance is furnished on unusual problems and work is reviewed for application of sound professional judgment.

Typical duties and responsibilities. Performs work which involves conventional types of plans, investigations, surveys, structures, or equipment with relatively few complex features for which there are precedents. Assignments usually include one or more of the following: Equipment design and development, test of materials, preparation of specifications, process study, research investigations, report preparation, and other activities of limited scope requiring knowledge of principles and techniques commonly employed in the specific narrow area of assignments.

Responsibility for direction of others. May supervise or coordinate the work of drafters, technicians, and others who assist in specific assignments.

Engineer IV

General characteristics. As a fully competent engineer in all conventional aspects of the subject matter of the functional area of the assignments, plans and conducts work requiring judgment in the independent evaluation, selection, and substantial adaptation and modification of standard techniques, procedures, and criteria. Devises new approaches to problems encountered. Requires sufficient professional experience to assure competence as a fully trained worker; or, for positions primarily of a research nature, completion of all requirements for a doctoral degree may be substituted for experience.

Direction received. Independently performs most assignments with instructions as to the general results expected. Receives technical guidance on unusual or complex problems and supervisory approval on proposed plans for projects.

Typical duties and responsibilities. Plans, schedules, conducts, or coordinates detailed phases of the engineering work in a part of a major project or in a total project of moderate scope. Performs work which involves conventional engineering practices but may include a variety of complex features such as conflicting design requirements, unsuitability of standard materials, and difficult coordination requirements. Work requires a broad knowledge of precedents in the specialty area and a good knowledge of principles and practices of related specialties.

Responsibility for direction of others. May supervise a few engineers or technicians on assigned work.

Engineer V

General characteristics. Applies intensive and diversified knowledge of engineering principles and practices in broad areas of assignments and related fields. Makes decisions independently on engineering problems and methods, and represents the organization in conferences to resolve important questions and to plan and coordinate work. Requires the use of advanced techniques and the modification and extension of theories, precepts, and practices of the field and related sciences and disciplines. The knowledge and expertise required for this level of work usually result from progressive experience, including work comparable to engineer IV.

Direction received. Supervision and guidance relate largely to overall objectives, critical issues, new concepts, and policy matters. Consults with supervisor concerning unusual problems and developments.

Typical duties and responsibilities. One or more of the following: (1) In a supervisory capacity, plans, develops, coordinates, and directs a large and important engineering project or a number of small projects with many complex features. A substantial portion of the work supervised is comparable to that described for engineer IV. (2) As individual researcher or worker, carries out complex or novel assignments requiring the development of new or improved techniques and procedures. Work is expected to result in the development of new or refined equipment, materials, processes, products, and/or scientific methods. (3) As staff specialist, develops and evaluates plans and criteria for a variety of projects and activities to be carried out by others. Assesses the feasibility and soundness of proposed engineering evaluation tests, products, or equipment when necessary data are insufficient or confirmation by testing is advisable. Usually performs as a staff advisor and consultant as to a technical specialty, a type of facility or equipment, or a program function.

Responsibility for direction of others. Supervises, coordinates, and reviews the work of a small staff of engineers and technicians; estimates personnel needs and schedules and assigns work to meet completion date. Or, as individual researcher or staff specialist, may be assisted on projects by other engineers or technicians.

Engineer VI

General characteristics. Has full technical responsibility for interpreting, organizing, executing, and coordinating assignments. Plans and develops engineering projects concerned with unique or controversial problems which have an important effect on major company programs. This involves exploration of subject area, definition of scope and selection of problems for investigation, and development of novel concepts and approaches. Maintains liaison with individuals and units within or outside the organization with responsibility for acting independently on technical matters pertaining to the field. Work at this level usually requires extensive progressive experience including work comparable to engineer V.

Direction received. Supervision received is essentially administrative, with assignments given in terms of broad, general objectives and limits.

Typical duties and responsibilities. One or more of the following: (1) In a supervisory capacity, (a) plans, develops, coordinates, and directs a number of large and important projects or a project of major scope and importance; or (b) is responsible for the entire engineering program of a company when the program is of limited complexity and scope. Extent of responsibilities generally requires a few (three to five) subordinate supervisors or team leaders with at least one in a position comparable to level V. (2) As individual researcher or worker, conceives, plans, and conducts research in problem areas of considerable scope and complexity. The problems must be approached through a series of complete and conceptually related studies, be difficult to define, require unconventional and novel approaches, and require sophisticated research techniques. Available guides and precedents contain critical gaps, are only partially related to the problem, or may be largely lacking due to the novel character of the project. At this level, the individual researcher generally will have contributed inventions, new designs, or techniques which are of material significance in the solution of important problems. (3) As a staff specialist, serves as the technical specialist for the organization (division or company) in the application of advanced theories, concepts, principles, and processes for an assigned area of responsibility (i.e., subject matter, function, type of facility or equipment, or product). Keeps abreast of new scientific methods and developments affecting the organization for the purpose of recommending changes in emphasis of programs or new programs warranted by such developments.

Responsibility for direction of others. Plans, organizes, and supervises the work of a staff of engineers and technicians. Evaluates progress of the staff and results obtained, and recommends major changes to achieve overall objectives. Or, as individual researcher or staff specialist, may be assisted on individual projects by other engineers or technicians.

Engineer VII

General characteristics. Makes decisions and recommendations that are recognized as authoritative and have an important impact on extensive engineering activities. Initiates and maintains extensive contacts with key engineers and officials of other organizations and companies requiring skill in persuasion and negotiation of critical issues. At this level, individuals will have demonstrated creativity, foresight, and mature engineering judgment in anticipating and solving unprecedented engineering problems, determining program objectives and requirements, organizing programs and projects, and developing standards and guides for diverse engineering activities.

Direction received. Receives general administrative direction.

Typical duties and responsibilities. One or both of the following: (1) In a supervisory capacity, is responsible for (a) an important segment of the engineering program of a company with extensive and diversified engineering requirements, or (b) the entire engineering program of a company when it is more limited in scope. The overall engineering program contains critical problems, the solution of which requires major technological advances and opens the way for extensive related development. Extent of responsibilities generally requires several subordinate organizational segments or teams. Recommends facilities, personnel, and funds required to carry out programs which are directly related to and directed toward fulfillment of overall company objectives. (2) As individual researcher and consultant, is a recognized leader and authority in the company in a broad area of specialization or in a narrow but intensely specialized field. Selects research problems to further the company's objectives. Conceives and plans investigations of broad areas of considerable novelty and importance for which engineering precedents are lacking in areas critical to the overall engineering program. Is consulted extensively by associates and others, with a high degree of reliance placed on the incumbent's scientific interpretations and advice. Typically, will have contributed inventions, new designs, or techniques which are regarded as major advances in the field.

Responsibility for direction of others. Directs several subordinate supervisors or team leaders, some of whom are in positions comparable to engineer VI; or, as individual researcher and consultant, may be assisted on individual projects by other engineers and technicians.

Engineer VIII

General charactistics. Makes decisions and recommendations that are recognized as authoritative and have a far-reaching impact on extensive engineering and related activities of the company. Negotiates critical and controversial issues with top level engineers and officers of other organizations and companies. Individuals at this level demonstrate a high degree of creativity, foresight, and mature judgment in planning, organizing, and guiding extensive engineering programs and activities of outstanding novelty and importance.

Direction received. Receives general administrative direction.

Typical duties and responsibilities. One or both of the following: (1) In a supervisory capacity, is responsible for (a) an important segment of a very extensive and highly diversified engineering program of a company, or (b) the entire engineering program of a company when the program is of moderate scope. The programs are of such complexity and scope that they are of critical importance to overall objectives, include problems of extraordinary difficulty that often have resisted solution, and consist of several segments requiring subordinate supervisors. Is responsible for deciding the kind and extent of engineering and related programs needed to accomplish the objectives of the company, for choosing the scientific approaches, for planning and organizing facilities and programs, and for interpreting results. (2) As individual researcher and consultant, formulates and guides the attack on problems of exceptional difficulty and marked importance to the company or industry. Problems are characterized by their lack of scientific precedents and source material, or lack of success of prior research and analysis so that their solution would represent an advance of great significance and importance. Performs advisory and consulting work for the company as a recognized authority for broad program areas or in an intensely specialized area of considerable novelty and importance.

Responsibility for direction of others. Supervises several subordinate supervisors or team leaders, some of whose positions are comparable to engineer VII and sometimes engineer VIII. As an individual researcher and consultant, may be assisted on individual projects by other engineers or technicians.

NOTE: Individuals in charge of a company's engineering program may match any of several of the survey job levels, depending on the size and complexity of engineering programs. *Excluded* from the definition are: (1) Engineers in charge of programs so extensive and complex (e.g., consisting of research and development on a variety of complex products or systems with numerous novel components) that one or more subordinate supervisory engineers are performing at level VIII; (2) individuals whose decisions have direct and substantial effect on setting policy for the organization (included, however, are supervisors deciding the "kind and extent of engineering and related programs" within broad guidelines set at a higher level); and (3) individual researchers and consultants who are recognized as national and/or international authorities and scientific leaders in very broad areas of scientific interest and investigation.

Technical Support Occupations

ENGINEERING TECHNICIAN

To be covered by these definitions, employees must meet *all* of the following criteria:

1. Provides semiprofessional technical support for engineers working in such areas as research, design, development, testing, or manufacturing process improvements.
2. Work pertains to electrical, electronic, or mechanical components or equipment.
3. Required to have some practical knowledge of science or engineering; some positions may also require a practical knowledge of mathematics or computer science.

Excludes production or maintenance workers, quality control technicians or testers, modelmakers or other craftworkers, chemical or other nonengineering technicians, civil engineering technicians, drafters, designers, and engineers (who are required to apply a professional knowledge of engineering theory and principles to their duties, unlike higher level engineering technicians who may perform the same duties using only practical skills and knowledge).

Also excludes engineering technicians:

a. Below level I who are limited to simple tasks such as: Measuring items of regular shape with a caliper and computing cross-sectional areas; identifying, weighing, and marking easy-to-identify items; or recording simple instrument readings at specified intervals; and

b. Above level V who perform work of broad scope and complexity either by planning and accomplishing a complete project or study or by serving as an expert in a narrow aspect of a particular field of engineering.

Engineering Technician I

Performs simple routine tasks under close supervision or from detailed procedures. Work is checked in process or on completion. Performs, at this level, one or a combination of such typical duties as:

Assembles or installs equipment or parts requiring simple wiring, soldering, or connecting.

Performs simple or routine tasks or tests such as tensile or hardness tests; operates and adjusts simple test equipment; records test data.

Gathers and maintains specified records of engineering data such as tests, drawings, etc.; performs computations by substituting numbers in specified formulas; and plots data and draws simple curves and graphs.

Engineering Technician II

Performs standardized or prescribed assignments involving a sequence of related operations. Follows standard work methods on recurring assignments but receives explicit instructions on unfamiliar assignments; technical adequacy of routine work is reviewed on completion; nonroutine work is reviewed in process. Performs, at this level, one or a combination of such typical duties as:

Assembles or constructs simple or standard equipment or parts; may service or repair simple instruments or equipment.

Conducts a variety of standardized tests; may prepare test specimens; sets up and operates standard test equipment; records test data, pointing out deviations resulting from equipment malfunction or observational errors.

Extracts engineering data from various prescribed but nonstandardized sources; processes the data following well-defined methods including elementary algebra and geometry; presents the data in prescribed form.

Engineering Technician III

Performs assignments that are not completely standardized or prescribed. Selects or adapts standard procedures or equipment, using fully applicable precedents. Receives initial instructions, equipment requirements, and advice from supervisor or engineer as needed; performs recurring work independently; and work is reviewed for technical adequacy or conformity with instructions. Performs, at this level, one or a combination of such typical duties as:

Constructs components, subunits, or simple models or adapts standard equipment. May troubleshoot and correct malfunctions.

Conducts various tests or experiments which may require minor modifications in test setups or procedures as well as subjective judgments in measurement; selects, sets up, and operates standard test equipment and records test data.

Extracts and compiles a variety of engineering data from field notes, manuals, lab reports, etc.; processes data, identifying errors or inconsistencies; and selects methods of data presentation.

Engineering Technician IV

Performs nonroutine assignments of substantial variety and complexity, using precedents which are not fully applicable. May also plan such assignments. Receives technical advice from supervisor or engineer (as needed, performs recurring work independently); work is reviewed for technical adequacy (or conformity with instructions). May be assisted by lower level technicians and have frequent contact with professionals and others within the establishment. Performs at this level one or a combination of such typical duties as:

Works on limited segment of development project; constructs experimental or prototype models to meet engineering requirements; conducts tests or experiments and redesigns them as necessary; and records and evaluates data and reports findings.

Conducts tests or experiments requiring selection and adaptation or modification of a wide variety of critical test equipment and test procedures; sets up and operates equipment; records data, measures and records problems of sufficient complexity to sometimes require resolution at higher level; and analyzes data and prepares test reports.

Extracts and analyzes a variety of engineering data; applies conventional engineering practices to develop or prepare schematics, designs, specifications, parts lists, or makes recommendations regarding these items. May review designs or specifications for adequacy.

Engineering Technician V

Performs nonroutine and complex assignments involving responsibility for planning and conducting a complete project of relatively limited scope or a portion of a larger and more diverse project. Selects and adapts plans, techniques, designs, or layouts. Contacts personnel in related activities to resolve mutual problems and coordinate the work; reviews, analyzes, and integrates the technical work of others. Supervisor or professional engineer outlines objectives, requirements, and design approaches; completed work is reviewed for technical adequacy and satisfaction of requirements. May train and be assisted by lower level technicians. Performs at this level one or a combination of such typical duties as:

Designs, develops, and constructs major units, devices, or equipment; conducts tests or experiments, analyzes results and redesigns or modifies equipment to improve performance; and reports results.

Plans or assists in planning tests to evaluate equipment performance. Determines test requirements, equipment modification, and test procedures; conducts tests, analyzes and evaluates data, and prepares reports on findings and recommendations.

Reviews and analyzes a variety of engineering data to determine requirements to meet engineering objectives; may calculate design data; and prepares layouts, detailed specifications, parts lists, estimates, procedures, etc. May check and analyze drawings or equipment to determine adequacy of drawings and designs.

DRAFTER

Performs drafting work requiring knowledge and skill in drafting methods, procedures, and techniques. Prepares drawings of structures, mechanical and electrical equipment, piping and duct systems, and similar equipment, systems, and assemblies. Drawings are used to communicate engineering ideas, designs, and information in support of engineering functions. Uses recognized systems of symbols, legends, shadings, and lines having specific meanings in drawings.

The following are *excluded* when they constitute the primary purpose of the job:

Design work requiring the technical knowledge, skill, and ability to conceive or originate designs;

Illustrating work requiring artistic ability;

Work involving the preparation of charts, diagrams, room arrangements, floor plans, etc.;

Cartographic work involving the preparation of maps or plats and related materials and drawings of geological structures; and

Supervisory work involving the management of a drafting program or the supervision of drafters when either constitutes the primary purpose of the job.

Positions are classified into levels on the basis of the following definitions.

Drafter I

Working under close supervision, traces or copies finished drawings, making clearly indicated revisions. Uses appropriate templates to draw curved lines. Assignments are designed to develop increasing skill in various drafting techniques. Work is spot checked during progress and reviewed upon completion.

Note: Excludes drafters performing elementary tasks while receiving training in the most basic drafting methods.

Drafter II

Prepares drawings of simple, easily visualized parts or equipment from sketches or marked-up prints. Selects appropriate templates and other equipment needed to complete assignments. Drawings fit familiar patterns and present few technical problems. Supervisor provides detailed instructions on new assignments, gives guidance when questions arise, and reviews completed work for accuracy.

Drafter III

Prepares various drawings of parts and assemblies, including sectional profiles, irregular or reverse curves, hidden lines, and small or intricate details. Work requires use of most of the conventional drafting techniques and a working knowledge of the terms and procedures of the industry. Familiar or recurring work is assigned in general terms; unfamiliar assignments include information on methods, procedures, sources of information, and precedents to be followed. Simple revisions to existing drawings may be assigned with a verbal explanation of the desired results; more complex revisions are produced from sketches which clearly depict the desired product.

Drafter IV

Prepares complete sets of complex drawings which include multiple views, detail drawings, and assembly drawings. Drawings include complex design features that require considerable drafting skill to visualize and portray. Assignments regularly require the use of mathematical formulas to compute weights, load capacities, dimensions, quantities of materials, etc. Working from sketches and verbal information supplied by an engineer or designer, determines the most appropriate views, detail drawings, and supplementary information needed to complete assignments. Selects required information from precedents, manufacturers' catalogs, and technical guides. Independently resolves most of the problems encountered. Supervisor or designer may suggest methods of approach or provide advice on unusually difficult problems.

Note: Excludes drafters performing work of similar difficulty to that described at this level but who provide support for a variety of organizations which have widely differing functions or requirements.

Drafter V

Works closely with design originators, preparing drawings of unusual, complex, or original designs which require a high degree of precision. Performs unusually difficult assignments requiring considerable initiative, resourcefulness, and drafting expertise. Assures that anticipated problems in manufacture, assembly, installation, and operation are resolved by the drawings produced. Exercises independent judgment in selecting and interpreting data based on a knowledge of the design intent. Although working primarily as a drafter, may occasionally perform engineering design work in interpreting general designs prepared by others or in completing missing design details. May provide advice and guidance to lower level drafters or serve as coordinator and planner for large and complex drafting projects.

Computer Operators

Monitors and operates the control console of either a mainframe digital computer or a group of minicomputers, in accordance with operating instructions, to process data. Work is characterized by the following:

Studies operating instructions to determine equipment setup needed;

Loads equipment with required items (tapes, cards, paper, etc.);

Switches necessary auxiliary equipment into system;

Starts and operates control console;

Reviews error messages and makes corrections during operation or refers problems; and

Maintains operating record.

May test run new or modified programs and *assist* in modifying systems or programs. Included within the scope of this definition are fully qualified computer operators, trainees working to become fully qualified operators, and lead operators providing *technical* assistance to lower level positions.

Excluded are:

a. Workers operating small computer systems where there is little or no opportunity for operator intervention in program processing and few requirements to correct equipment malfunctions;

b. Peripheral equipment operators and remote terminal or computer operators who do not run the *control console* of either a mainframe digital computer or a group of minicomputers; and

c. Workers using the computer for scientific, technical, or mathematical work when a knowledge of the subject matter is required.

Computer Operator I

Receives on-the-job training in operating the control console (sometimes augmented by classroom training). Works under close personal supervision and is provided detailed written or oral guidance before and during assignments. As instructed, resolves common operating problems. May serve as an assistant operator working under close supervision or performing a portion of a more senior operator's work.

Computer Operator II

Processes scheduled routines which present few difficult operating problems (e.g., infrequent or easily resolved error conditions). In response to computer output instructions or error conditions, applies standard operating or corrective procedure. Refers problems which do not respond to preplanned procedure. May serve as an assistant operator, working under general supervison.

Computer Operator III

Processes a range of scheduled routines. In addition to operating the system and resolving common error conditions, diagnoses and acts on machine stoppage and error conditions not fully covered by existing procedures and guidelines (e.g., resetting switches and other controls or making mechanical adjustments to maintain or restore equipment operations). In response to computer output instructions or error conditions, may deviate from standard procedures if standard procedures do not provide a solution. Refers problems which do not respond to corrective procedures.

Computer Operator IV

Adapts to a variety of nonstandard problems which require extensive operator intervention (e.g., frequent introduction of new programs, applications, or procedures). In response to computer output instructions or error conditions, chooses or devises a course of action from among several alternatives and alters or deviates from standard procedures if standard procedures do not provide a solution (e.g., reassigning equipment in order to work around faulty equipment or to transfer channels); then refers problems. Typically, completed work is submitted to users without supervisory review.

Computer Operator V

Resolves a variety of difficult operating problems (e.g., making unusual equipment connections and rarely used equipment and channel configurations to direct processing through or around problems in equipment, circuits, or channels or reviewing test run requirements and developing unusual system configurations that will allow test programs to process without interferring with on-going job requirements). In response to computer output instructions and error conditions or to avoid loss of information or to conserve computer time, operator deviates from standard procedures. Such actions may materially alter the computer unit's production plans. May spend considerable time away from the control station providing technical assistance to lower level operators and assisting programmers, systems analysts, and subject matter specialists in resolving problems.

Computer Operator VI

In addition to level V responsibilities, uses a knowledge of program language, computer features, and software systems to assist in: (1) Maintaining, modifying, and developing operating systems or programs; (2) developing operating instructions and techniques to cover problem situations; and (3) switching to emergency backup procedures.

Photographers

Takes pictures requiring a knowledge of photographic techniques, equipment, and processes. Typically, some familiarity with the company's activities (e.g., scientific, engineering, industrial, technical, retail, commercial, etc.) and some artistic ability are needed at the higher levels. Depending on the objectives of the assignment, photographers use standard equipment (including simple still, graphic, and motion picture cameras, video and television hand cameras, and similar commonly used equipment) and/or use special-purpose equipment (including specialized still and graphic cameras, motion picture production, television studio, and high-speed cameras and equipment). At the higher levels, a complex accessory system of equipment *may* be used, as needed, with sound or lighting systems, generators, timing or measurement control mechanisms, or improvised stages or environments, etc. Work of photographers at all levels is reviewed for quality and acceptability. Photographers may also develop, process, and edit film or tape, may serve as a lead photographer to lower level workers, or may do work described at lower levels as needed.

Excluded are:

a. Workers who have no training or experience in photography techniques, equipment, and processes;

b. Workers who primarily operate reproduction, offset, or copying machines, motion picture projectors, or machines to match, cut, or splice negatives;

c. Workers who *primarily* develop, process, print, or edit photographic film or tape; or develop, maintain, or repair photographic equipment;

d. Workers who *primarily* direct the sequence, actions, photography, sound, and editing of motion pictures for television writers and editors; and

e. Photographers taking pictures for *commercial* newspaper or magazine publishers, television stations, or movie producers.

Positions are matched to the appropriate level based on the difficulty of, and responsibility for, the photography performed, including the subject-matter knowledge and artistry required to fulfill the assignment. While the equipment may be an indication of the level of difficulty, photographers at the higher levels may use standard equipment, as needed.

Photographer I

Takes routine pictures in situations where several shots can be taken. Uses standard still cameras for pictures where complications, such as speed, motion, color contrast, or lighting are not present or where there is no particular need to overcome them. Photographs are taken for identification, employee publications, information, or publicity purposes. Workers may be able to focus, center, and provide simple flash-type lighting for an uncomplicated photograph.

Typical subjects are employees who are photographed for identification or publicity of award ceremonies, interviews, banquets, or meetings; or external views of machinery, supplies, equipment, buildings, damaged shipments, or other routine subjects photographed to record the condition at a specified time. Assignments are usually performed without direct guidance due to the clear and simple nature of the desired photograph.

Photographer II

Uses standard still cameras, commonly available lighting equipment, and related techniques to take photographs which involve limited problems of speed, motion, color contrast, or lighting. Typically, the subjects photographed are similar to those at level I, but the technical aspects require more skill. Based on clear-cut objectives, determines shutter speeds, lens settings and filters, camera angles, exposure times, and type of film. Requires familiarity with the situation gained from similar past experience to arrange for specific emphasis, balanced lighting, and correction for distortion, etc., as needed. May use 16mm. or 35mm. motion picture cameras for simple shots such as moving equipment, individuals at work or meetings, and the like, where available or simple artificial lighting is used.

Ordinarily, there is opportunity for repeated shots or for retakes if the original exposure is unsatisfactory. Consults with supervisor or more experienced photographers when problems are anticipated.

Photographer III

Selects from a range of standard photographic equipment for assignments demanding exact renditions, normally without opportunity for later retakes, when there are specific problems or uncertainties concerning lighting, exposure time, color, artistry, etc. Discusses technical requirements with operating officials or supervisor and customizes treatment for each situation according to a detailed request. Varies camera processes and techniques and uses the setting and background to produce esthetic, as well as accurate and informative, pictures. Typically, standard equipment is used at this level although "specialized" photography work is usually performed; may use some special-purpose equipment under closer supervision.

In typical assignments, photographs: Drawings, charts, maps, textiles, etc., requiring accurate computation of reduction ratios and exposure times and precise equipment adjustments; tissue specimens in fine detail and exact color when color and condition of the tissue may deteriorate rapidly; medical or surgical procedures or conditions which normally cannot be recaptured; machine or motor parts to show wear or corrosion in minute wires or gears; specialized real estate or retail goods for company catalogs or listings where saleability is enhanced by the photography; company products, work, construction sites, or patrons in prescribed detail to substantiate legal claims, contracts, etc.; artistic or technical design layouts requiring precise equipment settings; fixed objects on the ground or air-to-air objects which must be captured quickly and require directing the pilot to get the correct angle of approach.

Works independently; solves most problems through consultations with more experienced photographers, if available, or through reference sources.

Photographer IV

Uses special-purpose cameras and related equipment for assignments in which the photographer usually makes all the technical decisions, although the objective of the pictures is determined by operating officials. Conceives and plans the technical photographic effects desired by operating officials and discusses modifications and improvements to their original ideas in light of the potential and limits of the equipment. Improvises photographic methods and techniques or selects and alters secondary photographic features (e.g., scenes, backgrounds, color, lighting) to carry out the desired primary objectives. Many assignments afford only one opportunity to photograph the subject. Typical examples of equipment used at this level include ultra-high speed, motion picture production, studio television, animation cameras, specialized still and graphic cameras, electronic timing and triggering devices, etc.

Some assignments are characterized by extremes in light values and the use of complicated equipment. Sets up precise photographic measurement and controls equipment; uses high-speed color photography, synchronized stroboscopic (interval) light sources, and/or timed electronic triggering; operates equipment from a remote point; or arranges and uses cameras operating at several thousand frames per second. In other assignments, selects and sets up motion picture or television cameras and accessories and shoots a part of a production or a sequence of scenes, or takes special scenes to be used for background or special effects in the production.

Works under the guidelines and requirements of the subject-matter area to be photographed. Consults with supervisors only when dealing with highly unusual problems or altering existing equipment.

Photographer V

As a top technical expert, exercises imagination and creative ability in response to photography situations requiring novel and unprecedented treatment. Typically performs *one or more* of the following assignments: (1) Develops and adapts photographic equipment or processes to meet new and unprecedented situations, e.g., works with engineers and physicists to develop and modify equipment for use in extreme conditions such as excessive heat or cold, radiation, high altitude, underwater, wind and pressure tunnels, or explosions; (2) plans and organizes the overall technical photographic coverage for a variety of events and developments in phases of a scientific, industrial, medical, or commercial research project or similar program; or (3) creates the desired illusion or emotional effect through developing trick or special effects photography for novel situations requiring a high degree of ingenuity and imaginative camera work to heighten, simulate, or alter reality.

Independently develops, plans, and organizes the overall technical photographic aspects of the assignment in collaboration with operating officials who are responsible for the substance of the project. Uses imagination and creative ability to implement objectives within the capabilities and limitations of cameras and equipment. May exercise limited control over the substance of the event to be photographed by staging the action, suggesting behavior of the principals, and rehearsing the activity before photographs are taken.

Note: Excluded are photographers above level V who independently plan the objectives, scope, and substance of the photography for the project in addition to planning the overall technical photographic coverage.

Clerical

ACCOUNTING CLERK

Performs one or more accounting tasks, such as posting to registers and ledgers; balancing and reconciling accounts; verifying the internal consistency, completeness, and mathematical accuracy of accounting documents; assigning prescribed accounting distribution codes; examining and verifying the clerical accuracy of various types of reports, lists, calculations, postings, etc.; preparing journal vouchers; or making entries or adjustments to accounts.

Levels I and II require a basic knowledge of routine clerical methods and office practices and procedures as they relate to the clerical processing and recording of transactions and accounting information. Levels III and IV require a knowledge and understanding of the established and standardized bookkeeping and accounting procedures and techniques used in an accounting system, or a segment of an accounting system, where there are few variations in the types of transactions handled. In addition, some jobs at each level may require a basic knowledge and understanding of the terminology, codes, and processes used in an automated accounting system.

Accounting Clerk I

Performs very simple and routine accounting clerical operations, for example, recognizing and comparing easily identified numbers and codes on similar and repetitive accounting documents, verifying mathematical accuracy, and identifying discrepancies and bringing them to the supervisor's attention. Supervisor gives clear detailed instructions for specific assignments. Employee refers to supervisor all matters not covered by instructions. Work is closely controlled and reviewed in detail for accuracy, adequacy, and adherence to instructions.

Accounting Clerk II

Performs one or more routine accounting clerical operations, such as: Examining, verifying, and correcting accounting transactions to ensure completeness and accuracy of data and proper identification of accounts, and checking that expenditures will not exceed obligations in specified accounts; totaling, balancing, and reconciling collection vouchers; posting data to transaction sheets where employee identifies proper accounts and items to be posted; and coding documents in accordance with a chart (listing) of accounts. Employee follows specific and detailed accounting procedures. Completed work is reviewed for accuracy and compliance with procedures.

Accounting Clerk III

Uses a knowledge of double entry bookkeeping in performing one or more of the following: Posts actions to journals, identifying subsidiary accounts affected and debit and credit entries to be made and assigning proper codes; reviews computer printouts against manually maintained journals, detecting and correcting erroneous postings, and preparing documents to adjust accounting classifications and other data; or reviews lists of transactions rejected by an automated system, determining reasons for rejections, and preparing necessary correcting material. On routine assignments, employee selects and applies established procedures and techniques. Detailed instructions are provided for difficult or unusual assignments. Completed work and methods used are reviewed for technical accuracy.

Accounting Clerk IV

Maintains journals or subsidiary ledgers of an accounting system and balances and reconciles accounts. Typical duties include one or both of the following: Reviews invoices and statements (verifying information, ensuring sufficient funds have been obligated, and, if questionable, resolving with the submitting unit, determining accounts involved, coding transactions, and processing material through data processing for application in the accounting system); and/or analyzes and reconciles computer printouts with operating unit reports (contacting units and researching causes of discrepancies, and taking action to ensure that accounts balance). Employee resolves problems in recurring assignments in accordance with previous training and experience. Supervisor provides suggestions for handling unusual or nonrecurring transactions. Conformance with requirements and technical soundness of completed work are reviewed by the supervisor or are controlled by mechanisms built into the accounting system.

Note: Excluded from level IV are positions responsible for maintaining either a general ledger or a general ledger in combination with subsidiary accounts.

FILE CLERK

Files, classifies, and retrieves material in an established filing system. May perform clerical and manual tasks required to maintain files. Positions are classified into levels on the basis of the following definitions.

File Clerk I

Performs routine filing of material that has already been classified or which is easily classified in a simple serial classification system (e.g., alphabetical, chronological, or numerical). As requested, locates readily available materials in files and forwards material; may fill out withdrawal charge. May perform simple clerical and manual tasks required to maintain and service files.

File Clerk II

Sorts, codes, and files unclassified material by simple (subject-matter) headings or partly classified material by finer subheadings. Prepares simple related index and cross-reference aids. As requested, locates clearly identified material in files and forwards material. May perform related clerical tasks required to maintain and service files.

File Clerk III

Classifies and indexes file material such as correspondence, reports, technical documents, etc., in an established filing system containing a number of varied subject matter files. May also file this material. May keep records of various types in conjunction with the files. May lead a small group of lower level file clerks.

KEY ENTRY OPERATOR

Operates keyboard-controlled data entry device such as keypunch machine or key-operated magnetic tape or disc encoder to transcribe data into a form suitable for computer processing. Work requires skill in operating an alphanumeric keyboard and an understanding of transcribing procedures and relevant data entry equipment.

Positions are classified into levels on the basis of the following definitions.

Key Entry Operator I

Work is routine and repetitive. Under close supervision or following specific procedures or detailed instructions, works from various standardized source documents which have been coded and require little or no selecting, coding, or interpreting of data to be entered. Refers to supervisor problems arising from erroneous items, codes, or missing information.

Key Entry Operator II

Work requires the application of experience and judgment in selecting procedures to be followed and in searching for, interpreting, selecting, or coding items to be entered from a variety of source documents. On occasion, may also perform some routine work as described for level I.

NOTE: Excluded are operators above level II using the key entry controls to access, read, and evaluate the substance of specific records to take substantive actions, or to make entries requiring a similar level of knowledge.

MESSENGER

Performs various routine duties such as running errands, operating minor office machines such as sealers or mailers, opening mail, distributing mail on a regularly scheduled route or in a familiar area, and other minor clerical work. May deliver mail that requires some special handling, e.g., mail that is insured, registered, or marked for special delivery.

Excluded are positions which include any of the following as *significant* duties:

a. Operating motor vehicles;

b. Delivering valuables or security-classified mail when the work requires a continuing knowledge of special procedures for handling such items;

c. Weighing mail, determining postage, or recording and controlling registered, insured, and certified mail in the mail room;

d. Making deliveries to unfamiliar or widely separated buildings or points which are not part of an established route; or

e. Directing other workers.

PERSONNEL CLERK/ASSISTANT (EMPLOYMENT)

Personnel clerks/assistants (employment) provide clerical and technical support to personnel professionals or managers in matters relating to recruiting, hiring, transfer, change in pay status, and termination of company employees. At the lower levels, clerks/assistants primarily provide basic information to current and prospective employees, maintain personnel records and information listings, and prepare and process papers on personnel actions (hires, transfers, changes in pay, etc.). At the higher levels, clerks/assistants (often titled personnel assistants or specialists) may perform limited aspects of a personnel professional's work, e.g., interviewing candidates, recommending placements, and preparing personnel reports. Final decisions on personnel actions are made by personnel professionals or managers. Some clerks/assistants may perform a limited amount of work in other specialties, such as benefits, compensation, or employee relations. Typing may be required at any level.

Excluded are:

a. Workers who primarily compute and process payrolls or compute and/or respond to questions on company benefits or retirement claims;

b. Workers who receive additional pay primarily for maintaining and safeguarding personnel record files for a company;

c. Workers whose duties do not require a knowledge of the company's personnel rules and procedures, such as receptionists, messengers, typists, or stenographers;

d. Workers in positions requiring a bachelor's degree; and

e. Workers who are primarily compensated for duties outside the employment specialty, such as benefits, compensation, or employee relations.

Positions are classified into levels on the basis of the following definitions. The work described is essentially at a responsible clerical level at the low levels and progresses to a staff assistant or technician level. At level III, which is transitional, both types of work are described. Jobs which match either type of work described at level III, or which are combinations of the two, can be matched.

Personnel Clerk/Assistant (Employment) I

Performs routine tasks which require a knowledge of company personnel procedures and rules, such as: Providing simple employment information and appropriate lists and forms to applicants or employees on types of jobs being filled, procedures to follow, and where to obtain additional information; ensuring that the proper company forms are completed for name changes, locator information, applications, etc., and reviewing completed forms for signatures and proper entries; or maintaining assigned segments of company personnel records, contacting appropriate sources to secure any missing items, and posting the items, such as, dates of promotion, transfer, and hire, or rates of pay or personal data. (If this information is computerized, skill in coding or entering information may be needed as a minor duty.) May answer outside inquiries for simple factual information, such as verification of dates of employment in response to telephone credit checks on employees. Some receptionist or other clerical duties may be performed. May be assigned work to provide training for a higher level position.

Detailed company rules and procedures are available for all aspects of the assignment. Guidance and assistance on unusual questions are available at all times. Work is spot checked, often on a daily basis.

Personnel Clerk/Assistant (Employment) II

Examines and/or processes personnel action documents using experience in applying company personnel procedures and policies. Ensures that all information is complete and consistent and determines whether further discussion with applicants or employees is needed or whether personnel information must be checked against additional files or listings. Must select the most appropriate precedent, rule, or procedures as a basis for the personnel action from a number of alternatives. Responds to varied questions from applicants, employees, or managers for readily available information which can be obtained from file material or manuals; responses require skill to secure cooperation in correcting improperly completed personnel action documents or to explain regulations and procedures. May provide information to managers on availability of applicants and status of hiring actions; may verify employment dates and places supplied on job applications; may maintain assigned personnel records, and may administer typing and stenography tests.

Completes routine assignments independently. Detailed guidance is available for situations which deviate from established precedents. Clerks/assistants are relied upon to alert higher level clerks/assistants or supervisor to such situations. Work may be spot checked periodically.

Personnel Clerk/Assistant (Employment) III

Type A

Serves as a clerical expert in independently processing the most complicated types of personnel actions, e.g., temporary employment, rehires, and dismissals, and in providing information when it is necessary to consolidate data from a number of sources, often with short deadlines. Screens applications for obvious rejections. Resolves conflicts in computer listings or other sources of employee information. Locates lost documents or reconstructs information using a number of sources. May check references of applicants when information in addition to dates and places of past work is needed, and judgment is required to ask appropriate routine follow-up questions. May provide guidance to lower level clerks. Supervisory review is similar to level II.

AND/OR

Type B

Performs routine personnel assignments beyond the clerical level, such as: Orienting new employees to company programs, facilities, rules on time and attendance, and leave policies; computing basic statistical information for reports on manpower profiles, EEO progress and accomplishments, hiring activities, attendance and leave profiles, turnover, etc.; and screening applicants for well-defined positions, rejecting those who do not qualify for available openings for clear-cut reasons, referring others to appropriate employment interviewer. Guidance is provided on possible sources of information, methods of work, and types of reports needed. Completed written work receives close technical review from higher level personnel office employees; other work may be checked occasionally.

Personnel Clerk/Assistant (Employment) IV

Performs work in support of personnel professionals which requires a good working knowledge of personnel procedures, guides, and precedents. In representative assignments: Interviews applicants, obtains references and recommends placement of applicants in a few well-defined occupations (trades or clerical) within a stable organization or unit; conducts postplacement or exit interviews to identify job adjustment problems or reasons for leaving the company; performs routine statistical analyses related to manpower, EEO, hiring, or other employment concerns, e.g., compares one set of data to another set as instructed; and requisitions applicants through employment agencies for clerical or similar level jobs. At this level, assistants typically have a range of personal contacts within and outside the company and with applicants, and must be tactful and articulate. May perform some clerical work in addition to the above duties. Supervisor reviews completed work against stated objectives.

Personnel Clerk/Assistant (Employment) V

Workers at this level perform duties similar to level IV, but are responsible for more complicated cases and work with greater independence. Performs limited aspects of professional personnel work dealing with a variety of occupations common to the company which are clear cut and stable in employment requirements. Typical duties include: Researching recruitment sources, such as employment agencies or State manpower offices, and advising managers on the availability of candidates in common occupations; screening and selecting employees for a few routine, nonpermanent jobs, such as summer employment; or answering inquiries on a controversial issue, such as a hiring or promotion freeze. These duties often require considerable skill and diplomacy in communications. Other typical duties may include: Surveying managers for future hiring requirements; developing newspaper vacancy announcements or explaining job requirements to employment agencies for administrative or professional positions; or reviewing the effect of corporate personnel procedural changes on local employment programs (e.g., automation of records, new affirmative action goals). May incidentally perform some clerical duties. Supervisory review is similar to level IV.

PURCHASING ASSISTANT

Provides clerical or technical support to buyers or contract specialists who deal with suppliers, vendors, contractors, etc., *outside* the company to purchase goods, materials, equipment, services, etc. Assistants at level I examine requisitions and purchase documents, such as purchase orders, invitations to bid, contracts, and supporting papers; they review, verify, prepare, or control the documents to assure accuracy, completeness, and correct processing. Assistants at levels II and III may also expedite purchases already made, by contacting vendors and analyzing and reporting on supplier problems related to delivery, availability of goods, or any other part of the purchase agreement. Assistants at level III may also develop technical information for buyers, e.g., comparative information on materials sought. All assignments require a practical knowledge of company purchasing procedures and operations *and* experience in applying company regulations, guidelines, or manuals to specific transactions. Assistants may type the purchasing documents they prepare or may perform work described at lower levels, as needed. Final decisions on purchasing transactions are made by buyers or contract specialists.

Excluded are:

a. Purchasing clerks or assistants, typists, file clerks, secretaries, receptionists, and trainees, who do not *examine* purchase requisitions or other documents to *assure* accuracy, completeness, and correct processing; workers in these excluded positions may prepare and type the final purchase order, entering such prescribed items as quantities, model numbers, addresses, or prices, after a higher level employee screens the requisition and assures the purchase order data are complete and accurate;

b. Workers who process or expedite the purchase of items for direct sale, either wholesale or retail;

c. Workers who as a primary duty: Maintain a filing system or listing to monitor inventory levels; reorder items by phone under ongoing contracts; or receive and disburse supplies and materials for use in the company;

d. Production expediters or controllers who primarily ensure the timely arrival and coordination of purchased materials with assembly line or production schedules and requirements;

e. Purchasing expediters who only check on the status of purchases already made and who do not analyze the facts at hand and do not make recommendations for either extension of delivery dates or for other similar modifications to the purchase agreement, as described at level II, b;

f. Positions which require a technical knowledge of equipment characteristics and parts, production control, or manufacturing methods and procedures;

g. Positions requiring a bachelor's degree; and

h. Buyers.

Positions are classified into levels based on the following definitions according to the complexity of the work, the conditions of the purchase, and the amount of supervision.

Purchasing Assistant I

According to detailed procedures or company regulations, examines documents such as requisitions, purchase orders, invitations to bid, contracts, and supporting papers. Reviews the purchase requisition to determine whether the correct item description, price, quantity, discount terms, shipping instructions, and/or delivery terms have been included and selects the appropriate purchase phrases and forms from prescribed company list or files. Obtains any missing or corrected information, prepares the purchase order, and gives it to the buyer for approval when satisfied that the information is complete and the computations are accurate. Contacts are usually within establishment to verify or correct factual information. May contact vendors for information about purchases already made and may reorder items under routine and existing purchase arrangements where few, if any, questions arise. Receives detailed instructions on new assignments. Refers questions to supervisor who may spot check work on a daily basis.

Assistants at this level examine documents for order of standard goods, supplies, equipment, or services, and/or for order of specialized items when the complexity of the item does not affect the assistant's work, i.e., the assistant is *not* required to use considerable judgment to find a previous transaction to use as a guideline, as described at level II, a.

Purchasing Assistant II

Assistants at this level perform assignments described in paragraphs a or b, or a combination of the two.

a. Reviews and prepares purchase documents for specialized items, such as items with optional features or technical equipment requiring precise specifications. Since the transactions usually require special purchasing conditions, e.g., multiple deliveries, provision of spare parts, or renegotiations of terms, considerable judgment is needed to find a previous transaction to use as a guideline; as required, adapts the phrases or clauses in the guideline transaction that apply to the purchase at hand. In some cases, reviews purchasing documents prepared by lower level clerks or prepared by personnel in other company units to detect processing discrepancies or to clarify the purchase papers; corrects clerical errors. May advise company employees on how to prepare requisitions for items to be ordered.

b. Expedites purchases by *making a recommendation for action* based on simple analysis of the facts at hand, company guidelines, and the background of the purchase: Contacts suppliers to obtain information on deliveries or on contracts; based on clear-cut guidelines for each type of purchase and previous performance of supplier, availability of item, or impact of delay, recommends extension of delivery date or other similar modifications. In some cases, decides to refer problems to production, packaging, or other company specialists. May reorder standard items under a variety of existing purchase agreements where judgment is needed to ask further questions and follow up and coordinate transactions. Assistants at this level expedite purchases of standard goods, supplies, equipment, or services, and/or purchases of specialized items when the complexity of the item does *not* affect the assistant's work, i.e., the assistant does not coordinate requests for minor deviations from contract specifications, etc., as described at level III, b.

Assistants at this level coordinate information with company buyers and with suppliers outside the company and keep others informed of the progress of transactions. Major changes in company regulations and procedures are explained by supervisor. Refers unusual situations to supervisor, who also spot checks all completed work for adequacy.

Purchasing Assistant III

Assistants at this level have a good understanding of purchase circumstances for specialized items—what to buy, where to buy, and under what terms buyers negotiate and make purchases. They perform assignments described in paragraphs a, b, or c, or a combination of any of these.

a. Reviews and prepares purchase documents for highly specialized items where few precedent transactions exist that can be used as guidelines and where provisions such as fixed-price contracts with provisions for escalation, price redetermination, or cost incentives are needed. Complicated provisions for progress payments, for testing and evaluating the ordered item, or for meeting company production schedules may also exist. As necessary, drafts special clauses, terms, or requirements for unusual purchases. Provides authoritative information to others on company purchase procedures and assures that documents and transactions agree with basic procurement policies.

b. Expedites purchases of specialized items when the complexity of the items *does* affect the assistant's work. (See level II, b.) Investigates supplier problems and coordinates requests for minor deviations from the contract specifications with specialists, buyers, suppliers, and users. Recommends revisions to the contract or purchase agreement, if needed, based upon company requirements. May reorder technical and specialized items within existing purchase contracts which contain special purchasing conditions. Questions which arise are handled similarly to those in level II, b.

c. Furnishes technical support to buyers or contract specialists, using a detailed knowledge of company purchasing transactions and procedures, e.g., analyzes bids for contracts to determine the possible number and interest of bidders for *standard* commodities and services; assembles contracts and drafts special clauses, terms, or requirements for unprecedented purchases, e.g., for specially designed equipment or for complex one-time transactions; gathers and summarizes information on the availability of special equipment and the ability of suppliers to meet company needs.

Purchasing assistants at this level receive instructions about new procurement policies. Assistants seek guidance on highly unusual problems but are expected to propose solutions for supervisory approval. Supervisory review is similar to level II; drafts of special clauses, etc., are reviewed in detail.

NOTE: Excluded are higher level workers who: Negotiate agreements with contractors on minor changes in the terms of an established contract; or analyze and make recommendations about proposals of specialized equipment, about the solvency and performance of firms, or about clerical processing methods needed to fit new purchasing policies.

SECRETARY

Provides principal secretarial support in an office, usually to one individual, and, in some cases, also to the subordinate staff of that individual. Maintains a close and highly responsive relationship to the day-to-day activities of the supervisor and staff. Works fairly independently receiving a minimum of detailed supervision and guidance. Performs varied clerical and secretarial duties requiring knowledge of office routine and an understanding of the organization, programs, and procedures related to the work of the office.

Exclusions. Not all positions titled "secretary" possess the above characteristics. Examples of positions which are excluded from the definition are as follows:

a. Clerks or secretaries working under the direction of secretaries or administrative assistants as described in e;

b. Stenographers not fully performing secretarial duties;

c. Stenographers or secretaries assigned to two or more professional, technical, or managerial persons of equivalent rank;

d. Assistants or secretaries performing any kind of technical work, e.g., personnel, accounting, or legal work;

e. Administrative assistants or supervisors performing duties which are more difficult or more responsible than the secretarial work described in LR-1 through LR-4;

f. Secretaries receiving additional pay primarily for maintaining confidentiality of payroll records or other sensitive information;

g. Secretaries performing routine receptionist, typing, and filing duties following detailed instructions and guidelines; these duties are less responsible than those described in LR-1 below; and

h. Trainees.

Classification by Level

Secretary jobs which meet the required characteristics are matched at one of five levels according to two factors: (a) Level of the secretary's supervisor within the overall organizational structure, and (b) level of the secretary's responsibility. Table C-5 indicates the level of the secretary for each combination of factors.

Level of secretary's supervisor (LS)

Secretaries should be matched at one of the three LS levels below best describing the organization of the secretary's supervisor.

LS-1. Organizational structure is not complex and internal procedures and administrative controls are simple and informal; supervisor directs staff through face-to-face meetings.

LS-2. Organizational structure is complex and is divided into subordinate groups that usually differ from each other as to subject matter, function, etc.; and supervisor usually directs staff through intermediate supervisors; internal procedures and administrative controls are formal. An entire organization (e.g., division, subsidiary, or parent organization) may contain a variety of subordinate groups which meet the LS-2 definition. Therefore, it is not unusual for one LS-2 supervisor to report to another LS-2 supervisor.

The presence of subordinate supervisors does not by itself mean LS-2 applies, e.g., a clerical processing organization divided into several units, each performing very similar work, is placed in LS-1.

In smaller organizations or industries such as retail trade, with relatively few organizational levels, the supervisor may have an impact on the policies and may deal with important outside contacts, as described in LS-3.

LS-3. Organizational structure is divided into two or more subordinate supervisory levels (of which at least one is a managerial level) with several subdivisions at each level. Executive's program(s) are usually interlocked on a direct and continuing basis with other major organizational segments, requiring constant attention to extensive formal coordination, clearances, and procedural controls. Executive typically has: Financial decisionmaking authority for assigned program(s); considerable impact on the entire organization's financial position or image; and responsibility for, or has staff specialists in, such areas as personnel and administration for assigned organization. Executive plays an important role in determining the policies and major programs of the entire organization, and spends considerable time dealing with outside parties actively interested in assigned program(s) and current or controversial issues.

Level of secretary's responsibility (LR)

This factor evaluates the nature of the work relationship between the secretary and the supervisor or staff, and the extent to which the secretary is expected to exercise initiative and judgment. Secretaries should be matched at the level best describing their level of responsibility. When a position's duties span more than one LR level, the introductory paragraph at the beginning of each LR level should be used to determine which of the levels best matches the position. (Typically, secretaries performing at the higher levels of responsibility also perform duties described at the lower levels.)

LR-1. Carries out *recurring* office procedures independently. Selects the guideline or reference which fits the specific case. Supervisor provides specific instructions on new assignments and checks completed work for accuracy. Performs varied duties including or comparable to the following:

a. Responds to routine telephone requests which have standard answers; refers calls and visitors to appropriate staff. Controls mail and assures timely staff response; may send form letters.

b. As instructed, maintains supervisor's calendar, makes appointments, and arranges for meeting rooms.

c. Reviews materials prepared for supervisor's approval for typographical accuracy and proper format.

d. Maintains recurring internal reports, such as: Time and leave records, office equipment listings, correspondence controls, training plans, etc.

e. Requisitions supplies, printing, maintenance, or other services. Types, takes and transcribes dictation, and establishes and maintains office files.

LR-2. Handles differing situations, problems, and deviations in the work of the office according to the supervisor's general instructions, priorities, duties, policies, and program goals. Supervisor may assist secretary with special assignments. Duties include or are comparable to the following:

a. Screens telephone calls, visitors, and incoming correspondence; personally responds to requests for information concerning office procedures; determines which requests should be handled by the supervisor, appropriate staff members, or other offices. May prepare and sign routine, nontechnical correspondence in own or supervisor's name.

b. Schedules tentative appointments without prior clearance. Makes arrangements for conferences and meetings and assembles established background materials, as directed. May attend meetings and record and report on the proceedings.

c. Reviews outgoing materials and correspondence for internal consistency and conformance with supervisor's procedures; assures that proper clearances have been obtained, when needed.

d. Collects information from the files or staff for routine inquiries on office program(s) or periodic reports. Refers nonroutine requests to supevisor or staff.

e. Explains to subordinate staff supervisor's requirements concerning office procedures. Coordinates personnel and administrative forms for the office and forwards for processing.

LR-3. Uses greater judgment and initiative to determine the approach or action to take in nonroutine situations. Interprets and adapts guidelines, including unwritten policies, precedents, and practices, which are not always completely applicable to changing situations. Duties include or are comparable to the following:

a. Based on a knowledge of the supervisor's views, composes correspondence on own initiative about administrative and general office policies for supervisor's approval.

b. Anticipates and prepares materials needed by the supervisor for conferences, correspondence, appointments, meetings, telephone calls, etc., and informs supervisor on matters to be considered.

c. Reads publications, regulations, and directives and takes action or refers those that are important to the supervisor and staff.

d. Prepares special or one-time reports, summaries, or replies to inquiries, selecting relevant information from a variety of sources such as reports, documents, correspondence, other offices, etc., under general direction.

e. Advises secretaries in subordinate offices on new procedures; requests information needed from the subordinate office(s) for periodic or special conferences, reports, inquiries, etc. Shifts clerical staff to accommodate workload needs.

LR-4. Handles a wide variety of situations and conflicts involving the clerical or administrative functions of the office which often cannot be brought to the attention of the executive. The executive sets the overall objectives of the work. Secretary may participate in developing the work deadlines. Duties include or are comparable to the following:

a. Composes correspondence requiring some understanding of technical matters; may sign for executive when technical or policy content has been authorized.

b. Notes commitments made by executive during meeting and arranges for staff implementation. On own initiative, arranges for staff member to represent organization at conferences and meetings, establishes appointment priorities, or reschedules or refuses appointments or invitations.

c. Reads outgoing correspondence for executive's approval and alerts writers to any conflict with the file or departure from policies or executive's viewpoints; gives advice to resolve the problems.

d. Summarizes the content of incoming materials, specially gathered information, or meetings to assist executive; coordinates the new information with background office sources; and draws attention to important parts or conflicts.

e. In the executive's absence, ensures that requests for action or information are relayed to the appropriate staff member; as needed, interprets request and helps implement action; makes sure that information is furnished in timely manner; decides whether executive should be notified of important or emergency matters.

Excludes secretaries performing any of the following duties:

a. Acts as office manager for the executive's organization, e.g., determines when new procedures are needed for changing situations and devises and implements alternatives; revises or clarifies procedures to eliminate conflict or duplication; identifies and resolves various problems that affect the orderly flow of work in transactions with parties outside the organization.

b. Prepares agenda for conferences; explains discussion topics to participants; drafts introductions and develops background information and prepares outlines for executive or staff members(s) to use in writing speeches.

c. Advises individuals outside the organization on the executive's views on major policies or current issues facing the organization; contacts or responds to contacts from high-ranking outside officials (e.g., city or State officials, Members of Congress, presidents of national unions or large national or international firms, etc.) in unique situations. These officials may be relatively inaccessible, and each contact typically must be handled differently, using judgment and discretion.

Table C-5. Criteria for matching secretaries by level

Level of secretary's supervisor	Level of secretary's responsibility			
	LR-1	LR-2	LR-3	LR-4
LS-1	I	II	III	IV
LS-2	I	III	IV	V
LS-3	I	IV	V	V

STENOGRAPHER

Primary duty is to take dictation using shorthand and to transcribe the dictation. May also type from written copy. May operate from a stenographic pool. May occasionally transcribe from voice recordings.

Excluded from this definition are:

a. Trainee positions not requiring a fully qualified stenographer;

b. Secretaries providing the principal secretarial support in an office and performing more responsible and discretionary tasks, as described in LR-1 thru LR-4 in the secretary definition;

c. Stenographers who take dictation involving the frequent use of a wide variety of technical or specialized vocabulary. Typically this kind of vocabulary cannot be learned in a relatively short period of time, e.g., a month or two; and

d. Stenographers, such as shorthand reporters, who record material verbatim at hearings, conferences, or similar proceedings.

Stenographer I

Takes and transcribes dictation, receiving specific assignments along with detailed instructions on such requirements as forms and presentation. The transcribed material is typically reviewed in rough draft and the final transcription is reviewed for conformance with the rough drafts. May maintain files, keep simple records, or perform other relatively routine clerical tasks.

Stenographer II

Takes and transcribes dictation, determining the most appropriate format. Performs stenographic duties requiring significantly greater independence and responsibility than stenographer I. Supervisor typically provides general instruction. Work requires a thorough working knowledge of general business and office procedures and of the specific business operations, organizations, policies, procedures, files, workflow, etc. Uses this knowledge in performing stenographic duties and responsible clerical tasks such as maintaining followup files; assembling material for reports, memoranda, and letters; composing simple letters from general instructions; reading and routing incoming mail; answering routine questions; etc.

TYPIST

Uses a manual, electric, or automatic typewriter to type various materials. Included are automatic typewriters that are used only to record text and update and reproduce previously typed items from magnetic cards or tape. May include typing of stencils, mats, or similar materials for use in duplicating processes. May do clerical work involving little special training, such as keeping simple records, filing records and reports, or sorting and distributing incoming mail.

Excluded from this definition is work that involves:

a. Typing directly from spoken material that has been recorded on discs, cylinders, belts, tapes, or other similar media;

b. The use of varitype machines, composing equipment, or automatic equipment in preparing material for printing; and

c. Familiarity with specialized terminology in various keyboard commands to manipulate or edit the recorded text to accomplish revisions, or to perform tasks such as extracting and listing items from the text, or transmitting text to other terminals, or using sort commands to have the machine reorder material. Typically requires the use of automatic equipment which may be either computer linked or have a programmable memory so that material can be organized in regularly used formats or preformed paragraphs which can then be coded and stored for future use in letters or documents.

NOTE: The occupational titles[1] and definitions for accounting clerks, drafters, file clerks, key entry operators, stenographers, and typists are the same as those used in the Bureau's program of occupational wage surveys in metropolitan areas.

Revised definitions for stenographer and typist were introduced into the area surveys in calendar year 1981; the 4-level accounting clerks, in 1980; and the 5-level drafter, in 1979. Three years are required to bring a new job definition into all areas covered by the program.

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[1] Before 1981, level designations differed between the area and national surveys. See *National Survey of Professional, Administrative, Technical, and Clerical Pay, March 1980,* Bulletin 2081 (Bureau of Labor Statistics, 1980), p. 68, for details.

Typist I

Performs *one of more of the following:* Copy typing from rough or clear drafts; or routine typing of forms, insurance policies, etc.; or setting up simple standard tabulations; or copying more complex tables already set up and spaced properly.

Typist II

Performs *one or more of the following:* Typing material in final form when it involves combining material from several sources; or responsibility for correct spelling; syllabification, punctuation, etc., of technical or unusual words or foreign language materials; or planning layout and typing of complicated statistical tables to maintain uniformity and balance in spacing. May type routine form letters, varying details to suit circumstances.

Classification by Standard Occupational Codes

The titles and the 3- or 4-digit codes to the right of the BLS (PATC) occupations in table C-6 are taken from the 1980 edition of the *Standard Occupational Classification Manual* (SOC), issued by the U.S. Department of Commerce, Office of Federal Statistical Policy and Standards.

In general, the Bureau of Labor Statistics' occupational descriptions are much more specific than those found in the SOC manual. For example, the PATC occupations Accountant, Chief Accountant, Auditor, and Public Accountant are all classified in the SOC manual as accountants and auditors. The SOC occupation (code 1412) includes a variety of accounting occupations (e.g., budget accountants, credit analysts, accounting methods analysts) that are excluded from the PATC description.

Table C-6. Comparison of occupations in the professional, administrative, technical, and clerical (PATC) survey with the Standard Occupational Classification Manual

PATC occupation	Standard Occupational Classification Manual (SOC)	
	SOC code	
Accountants	1412	Accountants and auditors
Chief accountants	1412	Accountants and auditors
Auditors	1412	Accountants and auditors
Public accountants	1412	Accountants and auditors
Job analysts	143	Personnel, training, and labor relations specialists
Directors of personnel	143	Personnel, training, and labor relations specialists
Attorneys	211	Lawyers
Buyers	1449	Purchasing agents and buyers, not elsewhere classified
Computer programmers	397	Programmers
Systems analysts	1712	Computer systems analysts
Chemists	1845	Chemists, except biochemists
Engineers	162-3	Engineers
Engineering technicians	371	Electrical and electronic engineering technologists and technicians
Drafters	372	Drafting occupations
Computer operators	4612	Computer operators
Photographers	326	Photographers
Accounting clerks	4712	Bookkeepers and accounting and auditing clerks
File clerks	4696	File clerks
Key entry operators	4793	Data entry operators
Messengers	4745	Messengers
Personnel clerks/assistants	4692	Personnel clerks, except payroll and timekeeping
Purchasing assistants	4664	Order clerks
Secretaries	4622	Secretaries
Stenographers	4623	Stenographers
Typists	4624	Typists

Appendix D. Comparisons of Salaries in Private Industry with Salaries of Federal Employees Under the General Schedule

The survey was designed to provide a basis for comparing salaries under the General Schedule classification and pay system with salaries in private enterprise. To assure collection of pay data for work levels equivalent to the General Schedule grade levels, the Office of Personnel Management (OPM), in cooperation with the Bureau of Labor Statistics, prepared the occupational work level definitions used in the survey. Definitions were graded by OPM according to standards established for each grade level. Table D-1 shows the surveyed jobs grouped by work levels equivalent to General Schedule grade levels.

Table D-1. Comparison of average annual salaries in private industry with salary rates for Federal employees under the General Schedule

Occupation and level surveyed by BLS[1]	Average annual salary in private industry,[2] March 1985	Salary rates for Federal employees under the General Schedule, March 1985[3]											
		Grade[4]	Average,[5] March 1985	Step[6]									
				1	2	3	4	5	6	7	8	9	10
File clerks I	$10,101	GS 1	$ 9,523	$ 9,339	$ 9,650	$ 9,961	$10,271	$10,582	$10,764	$11,071	$11,380	$11,393	$11,686
Messengers	11,685												
Accounting clerks I	12,380	GS 2	10,748	10,501	10,750	11,097	11,393	11,521	11,860	12,199	12,538	12,877	13,216
Drafters I	13,208												
File clerks II	11,836												
Key entry operators I	13,200												
Typists I	12,621												
Accounting clerks II	14,728	GS 3	12,236	11,458	11,840	12,222	12,604	12,986	13,368	13,750	14,132	14,514	14,896
Drafters II	16,488												
Engineering technicians I	16,876												
File clerks III	14,707												
Key entry operators II	16,600												
Personnel clerks/assistants I	14,023												
Stenographers I	18,391												
Typists II	15,847												
Accounting clerks III	17,327	GS 4	14,272	12,862	13,291	13,720	14,149	14,578	15,007	15,436	15,865	16,294	16,723
Computer operators I	13,670												
Drafters III	20,006												
Engineering technicians II	19,339												
Personnel clerks/assistants II	16,375												
Photographers I	17,571												
Purchasing assistants I	16,363												
Secretaries I	15,869												
Stenographers I	20,194												
Accounting clerks IV	21,106	GS 5	16,289	14,390	14,870	15,350	15,830	16,310	16,790	17,270	17,750	18,230	18,710
Accountants I	20,577												
Auditors I	21,128												
Buyers I	20,896												
Chemists I	22,631												
Computer operators II	16,973												
Drafters IV	23,950												
Engineers I	27,405												
Engineering technicians III	23,179												
Job analysts I	20,774												
Personnel clerks/assistants III	18,870												
Photographers II	22,019												
Computer programmers I	20,318												
Purchasing assistants II	21,135												
Secretaries II	17,721												

See footnotes at end of table.

Table D-1. Continued—Comparison of average annual salaries in private industry with salary rates for Federal employees under the General Schedule

Occupation and level surveyed by BLS[1]	Average annual salary in private industry,[2] March 1985	Salary rates for Federal employees under the General Schedule, March 1985[3]											
		Grade[4]	Average,[5] March 1985	Step[6]									
				1	2	3	4	5	6	7	8	9	10
Computer operators III	$20,664	GS 6	$18,467	$16,040	$16,575	$17,110	$17,645	$18,180	$18,715	$19,250	$19,785	$20,320	$20,855
Personnel clerks/assistants IV	22,355												
Purchasing assistants III	28,150												
Secretaries III	19,988												
Accountants II	25,349	GS 7	20,227	17,824	18,418	19,012	19,606	20,200	20,794	21,388	21,982	22,576	23,170
Auditors II	25,854												
Buyers II	25,606												
Chemists II	26,722												
Computer operators IV	24,016												
Drafters V	29,876												
Engineers II	30,275												
Engineering technicians IV	27,259												
Job analysts II	23,602												
Photographers III	26,489												
Computer programmers II	23,690												
Public accountants I	19,657												
Secretaries IV	22,520												
Computer operators V	28,440	GS 8	22,885	19,740	20,398	21,506	21,714	22,372	23,030	23,688	24,346	25,004	25,662
Secretaries V	26,210												
Accountants III	30,037	GS 9	24,508	21,804	22,531	23,258	23,985	24,712	25,439	26,166	26,893	27,620	28,347
Attorneys I	29,886												
Auditors III	31,246												
Buyers III	31,774												
Chemists III	32,461												
Engineers III	34,348												
Engineering technicians V	31,386												
Job analysts III	29,905												
Photographers IV	30,210												
Computer programmers III	28,367												
Public accountants II	22,134												
Systems analysts I	28,197												
Accountants IV	37,607	GS 11	29,772	26,381	27,260	28,139	29,018	29,897	30,776	31,655	32,534	33,413	34,292
Attorneys II	37,256												
Auditors IV	39,243												
Buyers IV	39,306												
Chemists IV	39,418												
Chief accountants I	37,557												
Directors of personnel I	37,173												
Engineers IV	40,991												
Job analysts IV	36,983												
Computer programmers IV	33,708												

See footnotes at end of table.

Table D-1. Continued—Comparison of average annual salaries in private industry with salary rates for Federal employees under the General Schedule

Occupation and level surveyed by BLS[1]	Average annual salary in private industry,[2] March 1985	Salary rates for Federal employees under the General Schedule, March 1985[3]											
		Grade[4]	Average,[5] March 1985	Step[6]									
				1	2	3	4	5	6	7	8	9	10
Public accountants III	$25,891												
Systems analysts II	$33,465												
Accountants V	46,879	GS 12	$36,082	$31,619	$32,673	$33,727	$34,781	$35,835	$36,889	$37,943	$38,997	$40,051	$41,105
Attorneys III	47,742												
Chemists V	47,706												
Chief accountants II	46,517												
Directors of personnel II	45,764												
Engineers V	48,366												
Computer programmers V	41,288												
Public accountants IV	31,416												
Systems analysts III	39,663												
Accountants VI	59,519	GS 13	43,[illegible]3	37,599	38,852	40,105	41,358	42,611	43,864	45,117	46,370	47,623	48,876
Attorneys IV	59,807												
Chemists VI	58,210												
Chief accountants III	60,466												
Directors of personnel III	59,317												
Engineers VI	56,136												
Systems analysts IV	46,729												
Attorneys V	73,805	GS 14	51,714	44,430	45,911	47,392	48,873	50,354	51,835	53,316	54,797	56,278	57,759
Chemists VII	68,710												
Chief accountants IV	74,735												
Directors of personnel IV	70,663												
Engineers VII	65,641												
Systems analysts V	56,461												
Attorneys VI	91,690	GS 15	61,505	52,262	54,004	55,746	57,488	59,230	60,972	62,714	64,456	66,198	67,940
Engineers VIII	76,205												
Systems analysts VI	68,800												

[1] For definitions, see appendix C.

[2] Survey findings as summarized in table 1 of this bulletin. For scope of survey, see appendix A.

[3] General schedule rates in effect in March 1985, the reference date of the PATC survey.

[4] Corresponding grades in the General Schedule were supplied by the Office of Personnel Management.

[5] Mean salary of all General Schedule employees in each grade as of March 31, 1985. Not limited to Federal employees in occupations surveyed by BLS.

[6] Section 5335 of title 5 of the U.S. Code provides for within-in grade increases on condition that the employees's work is of an acceptable level of competence as defined by the head of the agency. For employees who meet this condition, the service requirements are 52 calendar weeks for each advancement to salary rates 2, 3, and 4; 104 weeks for advancement to salary rates 5, 6, and 7, and 156 weeks for each advancement to salary rates 8, 9, and 10. Section 5336 provides that an additional within-grade increase may be granted within any 52-week period in recognition of high quality performance above that ordinarily found in the type of position concerned.

NOTE: Under Section 5303 of title 5 of the U.S. Code, higher minimum rates (but not exceeding the maximum salary rate prescribed in the General Schedule for the grade or level) and a corresponding new salary range may be established for positions or occupations under certain conditions. The conditions include a finding that the Government's recruitment or retention of well-qualified persons is significantly handicapped because the salary rates in private industry are substantially above the salary rates of the statutory pay schedules. As of March 1985, special higher salary rates were authorized for professional engineers at the entry grades (GS-5 and GS-7), and at GS-9 and GS-11. In addition, special rates were authorized for mining and electrical engineers at GS-5 through GS-12 and petroleum engineers at GS-5 through GS-13. Information on special salary rates, including the occupations and the areas to which they apply, may be obtained from the Office of Personnel Management, Washington, D.C. 20415, or its regional offices.

Employee Benefits in Medium and Large Firms, 1984

U.S. Department of Labor
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Bulletin 2237

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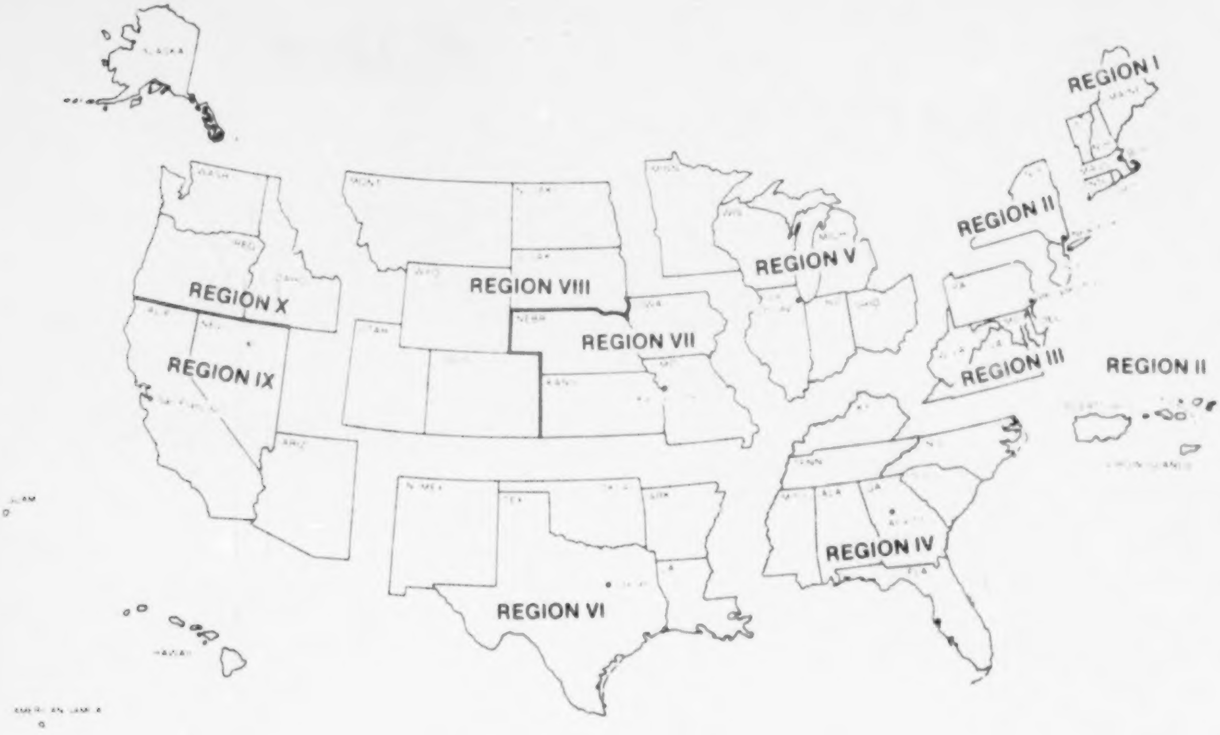
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